


2002

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Hodge, James G. Jr. and Gostin, Lawrence O. (2002) "School Vaccination Requirements: Historical, Social, and Legal Perspectives," *Kentucky Law Journal*: Vol. 90 : Iss. 4 , Article 7.
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ARTICLES

School Vaccination Requirements: Historical, Social, and Legal Perspectives*

BY JAMES G. HODGE, JR., J.D., LL.M.**
& LAWRENCE O. GOSTIN, J.D., LL.D. (Hon.)***

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* This Article is based, in part, on the authors' report of the same title prepared with support from the Merck Foundation. Although the Merck Foundation provided funding support, the report solely represents the scholarly views of its authors. The Article is also based in part on LAWRENCE O. GOSTIN, PUBLIC HEALTH LAW: POWER, DUTY, RESTRAINT (2000).

The authors are grateful for the assistance of distinguished public health officials, scholars, and other experts in vaccination law, history, ethics, and policy who provided comments and suggestions pursuant to their peer review of the corresponding report. These individuals include: Bruce Gellin, M.D., Department of Preventive Medicine, Vanderbilt Medical Center; Neal A. Halsey, M.D., Director, Institute for Vaccine Safety, Johns Hopkins Bloomberg School of Public Health; Alan R. Hinman, M.D., M.P.H., Senior Consultant for Public Health Programs, Task Force for Child Survival and Development; Walter Orenstein, M.D., Director, National Immunization Program, Centers for Disease Control & Prevention; and Tom Vernon, M.D., Executive Director, Medical, Scientific, and Public Health Affairs, Merck Vaccine Division, Merck and Co., Inc.

The authors would also like to thank Lance Gable, J.D., William Tarantino, J.D., Mark Lowry, J.D., Mira Burghardt, J.D., and Dan Cooper (Georgetown University Law Center) for their research assistance.

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I. INTRODUCTION

Vaccination, or the administration of a vaccine or toxoid used to prevent or ameliorate infectious disease, has had a rich, interesting, and controversial history in the United States and abroad.¹ Although basic principles underlying vaccination date back to the second century, A.D., vaccination as a modern public health practice emanated from the

¹ As to the use of vaccination as a treatment, see Donald S. Burke, *Vaccine Therapy for HIV: A Historical Review of the Treatment of Infectious Diseases by Active Specific Immunization with Microbe-Derived Antigens*, 11 VACCINE 883 (1993).

work of (among others) Dr. Edward Jenner who developed a vaccine in the late eighteenth century for the smallpox disease.² Since this and other immunological discoveries, vaccination has been an important component of public health practice. The Centers for Disease Control and Prevention ("CDC") lists vaccination practices among the top ten public health achievements of the twentieth century.³ Vaccination programs are among the most cost-effective and widely used public health interventions and have helped to control the spread of epidemic diseases, including smallpox, measles, mumps, rubella, diphtheria, and polio.⁴

As a core component of public health practice in the United States, vaccination programs are supported by state legal requirements and federal funding and oversight. Each state has school vaccination laws which require children of appropriate age to be vaccinated for several communicable diseases.⁵ Subject to exceptions, including individual medical,⁶ religious,⁷ and philosophical⁸ objections, modern state school vaccination laws mandate that children be vaccinated prior to being allowed to attend public or private schools. Failure to vaccinate children can result in children being denied from attending school, civil fines and criminal penalties (although rarely employed)⁹ against their parents or guardians, and other measures (e.g., the closure of a school).

² 6 THE NEW ENCYCLOPAEDIA BRITANNICA 530 (1987).

³ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Human Servs., *Impact of Vaccines Universally Recommended for Children—United States, 1900-1998*, 281 JAMA 1482, 1482-83 (1999) [hereinafter *Impact of Vaccines*].

⁴ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Ten Great Public Health Achievements—United States, 1900-1999*, 48 MORBIDITY & MORTALITY WKLY. REP. 241, 241 (1999); *Impact of Vaccines*, *supra* note 3, at 1482-83.

⁵ See *infra* Table 2.

⁶ See, e.g., 39 AM. JUR. 2D *Health* § 68 (1998).

⁷ See, e.g., Timothy J. Aspinwall, *Religious Exemptions to Childhood Immunization Statutes: Reaching for a More Optimal Balance Between Religious Freedom and Public Health*, 29 LOY. U. CHI. L.J. 109 (1997).

⁸ See, e.g., Todd E. Gordon et al., *Consent for Adolescent Vaccination: Issues and Current Practices*, 67 J. SCH. HEALTH 259 (1997); Walter A. Orenstein & Alan R. Hinman, *The Immunization System in the United States—The Role of School Immunization Laws*, 17 VACCINE S19 (1999).

⁹ See, e.g., *Go To Jail To Test Vaccination Law*, N.Y. TIMES, May 13, 1924, at 24 (reporting that prominent New York city parents chose imprisonment over vaccinating their children under school vaccination law); *Lose Vaccination Appeal*, N.Y. TIMES, Nov. 11, 1922, at 6 (reporting that several fathers were civilly fined and jailed for failing to vaccinate their children as a condition of school attendance).

State school vaccination requirements are widely thought to serve important public health purposes. Incidents of communicable disease (for which there are vaccines) among children have significantly declined since the introduction and regular enforcement of school vaccination laws.¹⁰ Despite its utility, vaccination has provoked popular resistance from the beginning. Historical and modern examples of the real, perceived, and potential harms of vaccination, governmental abuses underlying its widespread practice, and strongly-held religious beliefs have led to fervent objections. School vaccination laws, in particular, have been strenuously challenged by parents and other "antivaccinationists" (referring generally to those who oppose population-based vaccination requirements) on legal, ethical, social, and epidemiological grounds. Some opponents express valid scientific objections about effectiveness or need for mass vaccinations; some fear harmful effects arising from the introduction of foreign particles into the human body; and others worry that vaccination actually transmits, rather than prevents, disease, or weakens the immune system. Vaccination programs have been legally challenged as (1) inconsistent with federal constitutional principles of individual liberty and due process;¹¹ (2) an unwarranted governmental interference with individual autonomy;¹² and (3) an infringement of personal religious beliefs under First Amendment principles.¹³

These historic and modern legal, political, philosophical, and social struggles surrounding vaccination are vividly reflected in legislative and judicial debates on the powers, or limits, of government to compel school vaccination policies. They are also manifested in the organized efforts of private groups to influence modern vaccination requirements. At the crux of public debate are core concerns about the tradeoffs between the public health benefits and the infringements on individual and parental freedoms arising from the systematic vaccination of millions of school age children in the United States. Public health authorities argue that school vaccination requirements have led to a drastic decrease in the incidence of once common childhood diseases. These decreases have significantly improved the morbidity and mortality rates in the general population. Without disputing these public health benefits, antivaccinationists view the consequences of mass vaccination on an individualistic basis. They contest

¹⁰ See *infra* Part IV.A.

¹¹ See, e.g., *Jacobson v. Massachusetts*, 197 U.S. 11 (1905); GEORGE ROSEN, A HISTORY OF PUBLIC HEALTH 165-66 (1993).

¹² See ROSEN, *supra* note 11, at 165-66.

¹³ *Id.*

school vaccination programs because they resent what they view as paternalistic, compelled medications. In reality, government does not force any person to be vaccinated, but rather provides strong incentives (i.e., school attendance) to seek compliance. Antivaccinationists allege that actual harms to children from vaccinations occur and that government vaccination requirements are at fault. Parents and others tend to perceive the risks to each individual child from vaccination as greater than the collective risks to the population due to the failure to vaccinate. For these persons, the tradeoff to a mass vaccination program is to allow parents to exempt their children from vaccination requirements for proven medical, religious, philosophical, or other reasons. This trade-off on a population-wide basis may be unacceptable to public health authorities because it can destroy the collective immunity of a population, thus leading to outbreaks of diseases among vaccinated and unvaccinated children.

In this Article, we explain prior and modern debates through an examination of the historical and contemporary aspects of immunization requirements as a condition of school attendance. Part II provides a brief history of vaccination as a medical and public health practice, using smallpox disease as the primary case study, and subsequently addresses corresponding societal and individual objections to the proliferation of vaccination programs. We discuss the chronology and social milieu leading to these policies through an historical description of legal and social factors underlying school vaccination laws and requirements. Part III reviews the subsequent legislative and judicial reactions to these policies. Did state and local lawmakers second guess the need for school vaccination laws, and, if so, for what reasons? How did courts construe these laws? Our judicial examination includes a review of the various legal and constitutional objections to school vaccination policies, including those based on religious beliefs under the First Amendment, equal protection theories, and due process concerns.

The historical and modern legal and social contexts support a contemporary discussion of views about school vaccination requirements in Part IV. We examine the modern debate through a scholarly discussion of available evidence of the public health effectiveness of school vaccination programs. We compare (1) childhood immunization rates and (2) rates of vaccine-preventable childhood diseases before and after the introduction of school vaccination requirements. Without devaluing the importance of the health and safety of each individual, this data suggest that school vaccination requirements have succeeded in increasing vaccination rates and reducing the incidence of childhood disease. Finally, we discuss modern antivaccination arguments. Like arguments from the past, antivaccination

sentiment is fueled by general distrust of governmental programs, a rugged sense of individualism, and concerns about the efficacy and safety of vaccines. Although these latter views are often grounded in myths about the correlation of vaccine requirements with increases in childhood diseases (like autism) or other dangers, some vaccines can harm a statistically small number of children and perpetuate fears. In these cases, the public health objective of controlling communicable disease spread in the population is weighed against potential harms to children. Especially for diseases like smallpox that no longer infect the population, the potential to use any vaccine that could harm any individual is deemed an unacceptable risk (unless smallpox was reintroduced into the general population through bioterrorism or other means). A brief conclusion follows.

II. HISTORICAL, LEGAL, AND SOCIAL ISSUES CONCERNING VACCINATION REQUIREMENTS FOR SCHOOL ATTENDANCE

A. *The Origins of Vaccination*

1. *Variolation: The Forerunner of Vaccination*

The history of vaccination is inextricably linked to the history of communicable diseases, most notably smallpox. Smallpox, or variola, was a scourge of some of our earliest civilizations. Smallpox scars can be found upon the faces of mummified Egyptian pharaohs.¹⁴ It was the first epidemic disease, however, to be prevented through mass vaccination and later totally eradicated among the general population due to a prolonged and expensive public health campaign.¹⁵

To understand the history of smallpox vaccination, one must first be introduced to a preceding practice known as variolation. Variolation refers to the transfer of actual smallpox virus directly from an actively infected patient to a non-immune person.¹⁶ Variolation entails significant risks for the non-immune person of actually contracting and spreading smallpox

¹⁴ Laura Gregario, *The Smallpox Legacy: A History of Pediatric Immunizations*, PHAROS, Fall 1996, at 7 ("The mummified head of Ramses V, who died in 1157 B.C., shows a pustular rash likely due to smallpox," as described in 1979 by Donald R. Hopkins of the Centers for Disease Control & Prevention. This may be the first documented case of the disease).

¹⁵ *Id.* at 7-13.

¹⁶ Susan L. Plotkin & Stanley A. Plotkin, *A Short History of Vaccination*, in VACCINES 1 (Stanley A. Plotkin & Walter A. Orenstein eds., 3d ed. 1999).

disease.¹⁷ In contrast, "vaccination" is the process of transferring a similar agent (in this case, cowpox virus) to a non-exposed individual, thus conferring immunity to the disease.¹⁸ A vaccine is a suspension of attenuated or killed micro organisms (bacteria, viruses, or rickettsias) or derivative antigenic (e.g., proteins or peptides).¹⁹

While the exact inception of variolation is unknown, it is believed to have originated in central Asia in the early part of the second century.²⁰ Ancient physicians realized that immunity to smallpox was conferred following a first infection. The Chinese practiced variolation by "planting the flowers" of the scabs of smallpox on uninfected children so as to produce a milder form of the disease.²¹ A Buddhist nun has been credited with saving the last surviving son of the Chinese premier, Wang Tan, by blowing the scabs of pustules from a mild case of smallpox into the child's right nostril.²² A 1742 Chinese medical text, *The Golden Mirror of Medicine*, lists three forms of variolation to protect against small pox infection: (1) plugging the nose with powdered scabs laid on cotton wool; (2) blowing powdered scabs into the nose; and (3) placing the undergarments of an infected child onto a healthy child.²³

The process of taking a medicine or elixir to vaccinate against illness dates back to the seventh century when Indian Buddhists drank snake venom to induce toxoid-induced immunity to snake bites.²⁴ The earliest record of "vaccination" with smallpox was noted by the Hindu physician, Dhanwantari, in the seventh century. His writings reveal a process in which he took fluid from the udder of a cow, incised the arm of a human subject,

¹⁷ Gregario, *supra* note 14, at 7-8.

¹⁸ *Id.* at 8.

¹⁹ DORLAND'S ILLUSTRATED MEDICAL DICTIONARY 1787 (1994). The terms "vaccination" and "immunization" are often used interchangeably. Immunization is the more inclusive term denoting the process of inducing or providing immunity artificially by administering an immunobiologic. Immunization can be passive or active. *Passive immunization* involves the administration of antibodies produced by an immune animal or human conferring short-term protection against infection. In *active immunization* (vaccination), the vaccine induces the host's own immune system to provide protection against the pathogen. W. Michael McDonnell & Frederick K. Askari, *Immunization*, 278 JAMA 2000 (1997).

²⁰ See LOUIS H. RODDIS, EDWARD JENNER AND THE DISCOVERY OF SMALLPOX VACCINATION 5 (1930).

²¹ *Id.* at 10.

²² Gregario, *supra* note 14, at 8.

²³ Plotkin & Plotkin, *supra* note 16, at 1-2.

²⁴ *Id.* at 1.

mixed the fluid and blood, and then observed the onset of smallpox fever.²⁵ It is unclear whether subjects survived these ordeals. Despite the potential of these discoveries, Dhanwantari's work appears to have been an isolated endeavor which was not often repeated in Asia at the time.

2. *The Advent of Vaccination*

The epidemic spread of smallpox to Europe during the 1400s²⁶ was associated with rapid urbanization as people crowded into cities.²⁷ Cemeteries filled with victims during multiple, recurring epidemics. Pock-marked survivors walked the streets. Though known and used in Europe, variolation was not well-received. European governments sought to prohibit early forms of variolation in response to public fears arising from exceptional cases where individuals contracted smallpox from the process itself. As variolation lost popularity and trust among the public, scientists searched for more effective solutions to stop the spread of the disease.

Individuals in colonial America also used variolation to deal with the blight of smallpox. Dr. Zabdiel Boylston of Boston may have performed the first inoculation on American shores in 1721.²⁸ Ten years later, Dr. John Kearsley, Sr. of Philadelphia submitted himself and his medical students to vaccination. The doctor commented with pride that he was "the first that us'd Inoculation in this Place."²⁹ The renowned Dr. Benjamin Rush used the cutting edge Suttonian method for inoculation.³⁰ This method used the clear serum from a developing lesion before it was filled with puss rather than the pustular material from another patient.³¹ This and other variolation methods were scientifically unproven and dangerous to individuals.

Not until Dr. Edward Jenner, a physician who is often labeled the "Father of Vaccination," attempted to control smallpox infection using systematic, deliberate inoculation based on scientific principles did vaccination develop.³² Jenner had firsthand knowledge of the limitations of variolation. As a young man at a privileged boarding school (Wotton-

²⁵ *Id.*

²⁶ Gregario, *supra* note 14, at 8.

²⁷ See Gregario, *supra* note 14; ROSEN, *supra* note 11.

²⁸ See Ira M. Rutkow, *Zabdiel Boylston and Smallpox Inoculation*, 136 ARCH. SURG. 1213 (2001).

²⁹ CARL BINGER, *REVOLUTIONARY DOCTOR: BENJAMIN RUSH, 1746-1813*, 73 (1966).

³⁰ *Id.* at 77.

³¹ *Id.*

³² See, e.g., DERRICK BAXBY, *JENNER'S SMALLPOX VACCINE* (1981).

under-Edge Grammar School) in the 1750s, Jenner had been rigorously prepared for smallpox variolation by fasting, taking medicines, and being detained with others suffering from various states of disease. Variolation was preceded by intermediate bleedings, purgings, and starvation in order to purify the blood for inoculation. It was often conducted on individuals who were already afflicted with other illnesses, such as tuberculosis, syphilis, and hepatitis. Not surprisingly, Jenner witnessed many fall ill to various maladies resulting from smallpox variolation.³³

After years of scientific education, study, and observation, Dr. Jenner adapted a method that used the pustules from cowpox, an animal disease which few people contracted, to prevent smallpox in the late 1700s.³⁴ His discovery was aided by the rural lore of the English countryside. Farmers and dairy breeders had noticed that milkmaids infected with the cowpox virus, *variola vaccinae*, rarely fell victim to epidemic smallpox outbreaks.³⁵ The cowpox virus infected the udders of cows.³⁶ Its transmission to humans was manifested as vesicular lesions on the hands of those who milked cows.³⁷ A 1765 paper entitled "Cowpox and its ability to prevent smallpox" presented at the Medical Society of London concluded that the natural history of cowpox was similar to smallpox in that cowpox was only contracted a single time by an individual.³⁸ Furthermore, those who had cowpox when inoculated with smallpox manifested an allergic type reaction but did not develop a vesicular rash.³⁹ In 1774, a farmer, Scott Jesty, inoculated his wife and sons using a stocking needle with material taken from an infected cow.⁴⁰ When Jesty's wife had an adverse reaction, however, he was publicly rebuked.⁴¹

Despite Jesty's failure, Dr. Jenner took material from the cowpox sore on the hand of a milkmaid, Sarah Nelmes, and placed it under the skin of a eight year old boy, James Phipps, in May, 1796.⁴² Like Jesty's wife, the boy developed a fever and a low grade lesion after inoculation.⁴³ Seven weeks later, Jenner inoculated the boy with matter taken from a pustule of

³³ C.W. DIXON, SMALLPOX 216 (1962); Plotkin & Plotkin, *supra* note 16.

³⁴ Plotkin & Plotkin, *supra* note 16, at 2.

³⁵ *Id.*

³⁶ *Id.*

³⁷ DIXON, *supra* note 33.

³⁸ *Id.* at 250.

³⁹ *Id.*

⁴⁰ Plotkin & Plotkin, *supra* note 16, at 2.

⁴¹ SHELDON WATTS, EPIDEMICS AND HISTORY 116-17 (1997).

⁴² See 6 BRITANNICA, *supra* note 2, at 530.

⁴³ *Id.*

a person afflicted with smallpox.⁴⁴ When the boy failed to contract smallpox, Jenner declared his experiment a success.⁴⁵ Jenner submitted his findings in a paper to the Royal Society, the oldest and most prestigious scientific society in Britain (which promptly refused the manuscript),⁴⁶ and later in a comprehensive text in 1798.⁴⁷ His cowpox inoculation was later called a "vaccine," derived from the Latin *vaccinus* pertaining to cows.⁴⁸ Louis Pasteur, in honor of Jenner's work, later extended the meaning of vaccine to include all prophylactic inoculations.⁴⁹

For his efforts, Jenner is credited with creating the science of immunology and, more importantly, with transforming smallpox from an uncontrollable epidemic into a manageable, avoidable disease that was effectively eradicated from the general worldwide population in 1977.⁵⁰ Pasteur and other notable scientific figures would go on to improve the science of immunology and discover additional vaccines for many additional diseases, including cholera, rabies, typhoid, yellow fever, plague, measles, certain forms of influenzae, varicella, and polio.⁵¹ Additional work on an elusive HIV/AIDS vaccine continues,⁵² as does development of genetically-produced vaccines (e.g., Alzheimer's vaccine).⁵³

B. *The Rise of Public Vaccination*

Dr. Jenner's discovery of the smallpox vaccine did not instantly result in government-led immunization efforts in Europe.⁵⁴ For some time, public distrust and a general lack of governmental action stood in the way of compulsory vaccination laws.⁵⁵ The smallpox vaccine was not always

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ EDWARD JENNER, AN INQUIRY INTO THE CAUSES AND EFFECTS OF VARIOLAE VACCINAE, A DISEASE, DISCOVERED IN THE WESTERN COUNTIES OF ENGLAND, PARTICULARLY GLOUCESTERSHIRE AND KNOWN BY THE NAME OF COW POX (Classics of Medicine Library 1978) (1798).

⁴⁸ See 6 BRITANNICA, *supra* note 2, at 530.

⁴⁹ Plotkin & Plotkin, *supra* note 16, at 2-3.

⁵⁰ See 10 BRITANNICA, *supra* note 2, at 887.

⁵¹ See, e.g., Plotkin & Plotkin, *supra* note 16, at 1-8.

⁵² *Impact of Vaccines*, *supra* note 3, at 1483; *New Approach to Vaccine Offers Promise*, VACCINE WKLY., May 10, 1999, available at 1999 WL 10299959.

⁵³ See, e.g., Robert A. Seder & Sanjay Gurunathan, *DNA Vaccines—Designer Vaccines for the 21st Century*, 341 NEW ENG. J. MED. 277 (1999).

⁵⁴ WATTS, *supra* note 41, at 114-15.

⁵⁵ *Id.*

available in ready quantities or suitable quality,⁵⁶ and the skill of vaccinators was inconsistent.⁵⁷ Improperly performed vaccinations led to highly-publicized complications.⁵⁸ During this time, vaccination was largely reserved for the benefit of privileged classes. However, by the early 1800s several European countries had begun compulsory vaccination programs.⁵⁹ In 1803, 17,000 vaccinations were performed in Germany of which almost half were tested by subsequent variolation.⁶⁰ Napoleon, in 1805, ordered the mass vaccination of military troops who had not previously had smallpox.⁶¹ Compulsory vaccination was instituted in Bavaria in 1807, Denmark in 1810, Russia in 1812, and Sweden in 1816.⁶² In 1818, the King of Wittenberg issued the following decree (evinced one of the earliest school vaccination requirements):

Every child must be vaccinated before it has completed its third year, under a penalty annually levied on its parents so long as the omission continues; and if the operation fail, it must be repeated . . . *No person to be received into any school, college or charitable institution; be bound apprentice to any trade; or hold any public office, who has not been vaccinated. When small-pox appears, all those liable to take it must be vaccinated without delay. . .*⁶³

The British Parliament enacted a series of legislative acts requiring and regulating vaccinations in the mid-1800s.⁶⁴ On July 23, 1840, an act was passed to provide free medical vaccination in England and Wales through government contracting with registered medical practitioners.⁶⁵ In 1853, Parliament passed "An Act to Extend and Make Compulsory the Practice of Vaccination" which required parents to vaccinate their infant children, not otherwise "unfit for vaccination," and file a certificate with the registrar of births and deaths.⁶⁶

⁵⁶ See, e.g., J.N. HAYS, THE BURDENS OF DISEASE 279 (1998).

⁵⁷ *Id.*

⁵⁸ See *id.*; WATTS, *supra* note 41, at 114-15; 6 BRITANNICA, *supra* note 2, at 530.

⁵⁹ HAYS, *supra* note 56, at 279.

⁶⁰ See U.S. GENERAL ACCOUNTING OFFICE, PREVENTIVE HEALTHCARE FOR CHILDREN, EXPERIENCE FROM SELECTED FOREIGN COUNTRIES (Aug. 1993).

⁶¹ *Id.*

⁶² HAYS, *supra* note 56, at 279.

⁶³ DIXON, *supra* note 33, at 278 (emphasis added).

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ *Id.* at 278-79.

These and other vaccination requirements significantly contributed to lowered rates of smallpox mortality in Europe. A public health report by Dr. John Simon, commissioned by the Queen of England and published in 1857, concluded that in the several decades following the adoption of vaccination policies in many European countries, mortality rates due to smallpox declined over eighty-eight percent.⁶⁷

In the United States, the vaccination movement centered on Dr. Benjamin Waterhouse of Harvard University.⁶⁸ Dr. Waterhouse engaged in his own vaccination experiments in the United States with knowledge of Dr. Jenner's findings. He advocated strongly and passionately for the widespread use of vaccination to exterminate smallpox.⁶⁹ In a journal editorial in 1816, Waterhouse wrote with a futuristic vision:

When we reflect on the immense destruction of our species by this single disease, small pox, . . . we are struck with . . . horror at the retrospect and are led to mourn over the wide extended scene which it exhibits of human misery. But happily for us, and for mankind, this general mortality and misery will be felt and seen no more. A new era is begun in the medical history of man; and the most destructive of diseases is about to be struck out of the list of human evils. . . .⁷⁰

Waterhouse's dedication to vaccination was so great that in 1800 he vaccinated four of his children as well as some of his servants.⁷¹ Waterhouse's influence extended to the first presidents of the republic, including Thomas Jefferson.⁷² Often called the greatest patron of vaccination in America, Jefferson inoculated several hundred members of his family, staff,

⁶⁷ Letter from Lewis A. Sayre to the Hon. Geo. Opdyke, Mayor of the City of New York, President of the Board of Commissioners of Health 5 (Feb. 27, 1862) (on file with author).

⁶⁸ See BERNARD I. COHEN, *THE LIFE AND SCIENTIFIC AND MEDICAL CAREER OF WATERHOUSE* (2 Vol. 1980); Donald R. Hopkins, *Benjamin Waterhouse (1754-1846)—The "Jenner of America,"* 26 AM. J. TROP. MED. & HYGIENE 1060, 1060 (1977).

⁶⁹ Hopkins, *supra* note 68, at 1060.

⁷⁰ Benjamin Waterhouse, *A Plea for Vaccination*, COLUMBIAN CENTINAL, Apr. 6, 1816.

⁷¹ HERVÉ BAZIN, *THE ERADICATION OF SMALLPOX: EDWARD JENNER AND THE FIRST AND ONLY ERADICATION OF A HUMAN INFECTIOUS DISEASE* 98 (2000).

⁷² See, e.g., ROBERT H. HALSEY, *HOW THE PRESIDENT, THOMAS JEFFERSON, AND DOCTOR BENJAMIN WATERHOUSE ESTABLISHED VACCINATION AS A PUBLIC HEALTH PROCEDURE* 1 (1936).

and friends in 1801 and commended Dr. Waterhouse highly for his work.⁷³ President Jefferson directed vaccination programs in the southern states and is further credited with developing a safer method to transport vaccines and maintain their potency by keeping the vaccines cool.⁷⁴ Despite Jefferson's efforts in America, as in England during this time, vaccination was generally reserved for the upper classes who were able to afford the procedure. Poorer citizens, lacking resources and information, either could not access the smallpox vaccine or did not sufficiently trust its safety.⁷⁵

As with any innovation, abuses concerning vaccination arose. Some individuals sold fabric pieces of shirts of those who supposedly had cowpox to unwary people. Customers were misinformed that exposure to the fabric would vaccinate them against smallpox. In Villagehead, near Boston, a sailor claiming to be infected with cowpox sold his shirt fragments. In fact, the sailor had smallpox and created a smallpox outbreak that resulted in fifty-eight fatalities.⁷⁶

Waterhouse tried to hold a monopoly on the vaccine, selling it to his fellow doctors for upwards of \$700.⁷⁷ Yet, he quickly realized that he could not monopolize on such a watershed discovery, and helped make the vaccine publicly available.⁷⁸ Although Waterhouse's and Jefferson's attempts to persuade individual physicians to promote the smallpox vaccinations were initially unsuccessful, state and local government leaders began to act.⁷⁹ The Maryland Assembly attempted to raise a \$30,000 lottery to fund a state vaccination agency, although its effort garnered only \$12,797.20.⁸⁰ During an 1802 outbreak of smallpox in New Orleans, Governor Clairborne, who originally opposed vaccination, enacted a compulsory vaccination law.⁸¹ That same year, Dr. James Smith of Baltimore, Maryland established a vaccine institution at his residence to provide free vaccinations to the poor.⁸²

⁷³ See RODDIS, *supra* note 20, at 99.

⁷⁴ See David Abbey, *Jefferson's Legacy Includes a Critical Role in the Eradication of Smallpox*, 1 THE JEFFERSON LEGACY FOUND. (2000), at <http://www.jeffersonlegacy.org/summer00.htm#smallpox> (last visited May 9, 2002).

⁷⁵ BAZIN, *supra* note 71; HALSEY, *supra* note 72.

⁷⁶ BAZIN, *supra* note 71, at 98.

⁷⁷ *Id.* at 99.

⁷⁸ Hopkins, *supra* note 68, at 1061.

⁷⁹ WHITFIELD J. BELL, JR., *THE COLONIAL PHYSICIAN* 134 (1975).

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.* at 133.

Smith furthered the cause of vaccination when he lobbied the United States Congress to give him the charge of maintaining the entire nation's vaccine supply.⁸³ Smith was given this appointment in 1813 when Congress enacted a bill on February 27, which empowered President James Madison "to appoint an agent to preserve the genuine vaccine matter, and to furnish the same to any citizen of the United States. . . ."⁸⁴ The law assured the free delivery of vaccine through the United States Postal Service.⁸⁵ Lacking coordinated state and local health systems and efficient means of transportation, however, the law had relatively little impact.⁸⁶ A mailing accident involving the delivery of smallpox variolous material to a physician in North Carolina led to a smallpox outbreak and caused Congress to repeal the law in 1822.⁸⁷

C. *Anti-Vaccination Sentiment*

Vaccinations are widely viewed as among the most cost-effective and widely used public health interventions.⁸⁸ Yet, since Dr. Jenner's time, vaccination has provoked popular and vocal resistance.⁸⁹ Although vaccination was generally accepted by the population of colonial America, minority opposition arose in many quarters.⁹⁰ Some opponents expressed valid scientific objections about effectiveness; some worried that vaccination transmitted other diseases (like syphilis)⁹¹ or caused harmful effects; and others objected on grounds of religious or philosophical principles.⁹² Compulsory vaccination was viewed by some as an unwarranted governmental interference with human autonomy and liberty.⁹³ This latter view is

⁸³ *Id.* at 135.

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ *Id.* at 140-43.

⁸⁷ *Id.*

⁸⁸ *Impact of Vaccines*, *supra* note 3, at 247. Not all vaccines, however, are among the most cost-effective public health interventions. Some recently licensed vaccines may have marginal benefit to cost ratios. Letter from Dr. Neal A. Halsey (Apr. 3, 2000) (on file with authors).

⁸⁹ ROSEN, *supra* note 11, at 165.

⁹⁰ *Id.*

⁹¹ HAYS, *supra* note 56, at 280.

⁹² ROSEN, *supra* note 11, at 165.

⁹³ *Jacobson v. Massachusetts*, 197 U.S. 11 (1905). As the Supreme Court struggled with the issue of vaccination in *Jacobson*, the Court noted that "'some physicians of great skill and repute, do not believe that vaccination is a preventive

attributable in part to overly aggressive public health practices and general public distrust of public health objectives.⁹⁴

In the throes of an epidemic disease like smallpox, public health advocates strongly pursued the need for comprehensive vaccination and were armed with sufficient governmental authority and resources to compel individuals to be vaccinated with or without consent. Though considered by many a civic duty, public health vaccination efforts were challenged by countless individuals who resisted the efforts of public health authorities to forcibly inject them with foreign substances. Public health authorities occasionally had to resort to drastic action, especially when smallpox outbreaks arose. Consider, for example, the *New York Times* report in 1895 of a lawsuit won by Emil Schaefer of Brooklyn, New York against a local public health official who forcefully vaccinated him for smallpox:

The police were frequently called upon to protect the vaccinators, and midnight raids were made by the vaccinators and the police, and people were vaccinated whether they submitted or objected. . . . Dr. Henry L. Schelling visited [Schaefer's] house April 27, 1894, and said he had come to vaccinate the family. Schaefer objected, and said he was suffering with a tumor on the brain, and thought it would be dangerous to be vaccinated. According to Schaefer's story, Dr. Schelling seized him by the arm, and exclaimed: 'You shall be vaccinated, if I die for it.'⁹⁵

Additional objections to vaccination on medical grounds emanated from physicians and scientists, who also attacked individuals on financial and personal bases.⁹⁶ Dr. Benjamin Moseley, a British leader of the antivaccinationist movement, presented evidence to refute Dr. Jenner's initial scientific discoveries and to discredit him generally among his

of smallpox.' " *Id.* at 34 (quoting *Viemester v. White*, 72 N.E. 97 (N.Y. 1904)). The Court also considered the claim that "vaccination 'quite often' caused serious and permanent injury to the health of the person vaccinated." *Id.* at 36. However, even though the defendant in *Jacobson* insisted that compulsory vaccination was "hostile to the inherent right of every freeman to care for his own body and health," the Court ultimately held that mandatory vaccinations were a valid exercise of the state's power to protect the health and safety of the public. *Id.* at 38-39. *See also* ROSEN, *supra* note 11, at 165-66; WILSON G. SMILLIE, *PUBLIC HEALTH ADMINISTRATION IN THE UNITED STATES* 133 (1947).

⁹⁴ FRANK P. GRAD, *PUBLIC HEALTH LAW MANUAL* 72-73 (2d ed. 1997).

⁹⁵ \$1,500 *For Forced Vaccination*, N.Y. TIMES, 1895 (on file with authors).

⁹⁶ WATTS, *supra* note 41, at 114.

peers.⁹⁷ Dr. Sims, a London physician, urged Dr. Jenner to move slowly since there was a likelihood that his vaccination could actually worsen a patient's condition.⁹⁸ Some physicians suggested vaccinations provided only temporary immunity. Others were concerned about the biological results of injecting humans with material derived from animals.⁹⁹ In America, Dr. Waterhouse was questioned for his prior lack of educational credentials and political views.

Such anti-vaccine sentiment continued despite proven values of widespread vaccination. Antivaccinationists advocated that other public health measures, including quarantine and isolation, were as effective against the spread of disease as vaccination. However, countries which imposed comprehensive vaccination policies among large or small populations quickly began to observe remarkable drops in rates of mortality due to smallpox,¹⁰⁰ even in cases which isolation alone could not prevent.¹⁰¹ One of the most dramatic examples of the effectiveness of compulsory vaccination requirements was seen in the great smallpox epidemic during the Franco-Prussian war in 1870. At the beginning of the war, French and Prussian soldiers were assured that neither army would be set forth unless vaccinated for smallpox pursuant to compulsory vaccination laws. In reality, only the Prussians adhered to compulsory vaccination practices. During battles that took place in the midst of the smallpox pandemic of 1870 to 1875, Prussian soldiers suffered 8630 cases of smallpox and 297 fatalities.¹⁰² The French, who failed to strictly enforce vaccination requirements, experienced 280,470 cases and suffered 23,470 fatalities.¹⁰³ These and many additional examples allowed public health experts to assert with confidence the value of smallpox vaccination.¹⁰⁴ In 1862, Dr. Lewis A. Sayre, a New York physician, assured the recently established New York City Board of Commissioners of Health that "[v]accination, when properly performed, is a certain and perfect protection against Smallpox."¹⁰⁵

⁹⁷ See BAXBY, *supra* note 32, at 85.

⁹⁸ *Id.* at 82.

⁹⁹ See Waterhouse, *supra* note 70.

¹⁰⁰ See, e.g., Letter from Lewis A. Sayre, *supra* note 67.

¹⁰¹ See, e.g., *Committed 441 Murders*, N.Y. TIMES, Oct. 1, 1896, at 1 (noting the benefits of vaccination in outbreaks in Gloucester, England, and additional cases at a county asylum and among post office employees).

¹⁰² WATTS, *supra* note 41, at 114-17.

¹⁰³ *Id.*

¹⁰⁴ See *id.*

¹⁰⁵ Letter from Lewis A. Sayre, *supra* note 67, at 4.

Some antivaccinationists argued against widespread, compulsory vaccination because they disagreed about the nature and causes of disease.¹⁰⁶ Increasing incidences of smallpox among the poor and refugees in highly crowded, urban settings were explained through two predominant sociological theories. One theory suggested that the contagion was due to poor environmental conditions.¹⁰⁷ Accordingly, smallpox was viewed as social in origin and solution. Another theory suggested that the widening gap between the rich and the poor was God's will and that diseases were mechanisms for controlling the balance between the blessed and the damned.¹⁰⁸ Under this theory, smallpox and other diseases were not viewed as diseases of social origin, but rather as natural controls over the size and extent of the poorer populations. This Malthusian analysis was one of the most widely quoted theories of the early antivaccinationists.¹⁰⁹

Recurring outbreaks of smallpox provided ample opportunities for public health officials and antivaccinationists to debate their respective positions. Historic accounts of a short-lived smallpox outbreak in Gloucester, England in 1890 are illustrative.¹¹⁰ Despite a school vaccination policy in place at the time, the outbreak was traced to several children who were infected while attending public elementary school. Almost 2000 people were infected, including 706 children, and 484 persons died.¹¹¹ Antivaccinationists argued that the school vaccination policy completely failed to prevent the outbreak. Public health officials suggested that most of the children who were infected were never vaccinated despite the policy.¹¹² A public health report issued to the English Parliament concluded that "[t]here is no escape from the conclusion that the heightened mortality and severity of the epidemic were greatly due to so large a proportion of unvaccinated children being attacked."¹¹³ Thus, concluded an editor of the *New York Times* in 1891, "while the anti-vaccinationists may cry 'See, your poison is not the sure preventive that it has been asserted to be!' it may be replied that . . . the few instances of apparent failure may simply have been cases of imperfect or too remote vaccination."¹¹⁴

¹⁰⁶ See HAYS, *supra* note 56, at 279-82.

¹⁰⁷ *Id.* at 280

¹⁰⁸ See WATTS, *supra* note 41, at 85-95.

¹⁰⁹ See HAYS, *supra* note 56, at 284.

¹¹⁰ Editorial, *Topics of the Times*, N.Y. TIMES, Nov. 26, 1891, at 5-6.

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ *Id.*

In Leicester, England, a powerful anti-vaccination league opposed compulsory vaccination imposed by an 1867 act that punished parents who failed to ensure that their children were properly vaccinated. Parents faced fines or imprisonment for disobeying the law. Opposition to the vaccination requirement based on medial concerns and personal liberties grew steadily. As a result, Leicester's childhood vaccination rate plummeted from over ninety percent in 1872 to just three percent in 1892. In this latter year, 3000 fines and sixty imprisonments were imposed.¹¹⁵

Despite sincere and aggressive campaigning against vaccination, most of the general public chose to be vaccinated when it became available, especially when smallpox outbreaks occurred. The fear of contracting smallpox and the assurance of public health authorities that vaccination prevented the disease sufficiently swayed most individuals to be vaccinated.¹¹⁶ Many abandoned their antivaccinationist views in the face of compelling medical, and public health, proof of the effectiveness of the smallpox vaccine. A 1915 editorial in the *Times* stated: "[o]nly the wildest of the anti-vaccinationists now deny the efficacy of the Jenner [vaccine] as a protection from smallpox."¹¹⁷ By 1942, less than 1000 new cases of smallpox emerged in the United States.¹¹⁸

Antivaccinationist sentiment largely remained the view of a vocal minority, although the fervor with which it was expressed remained influential. Antivaccinationists appealed to interests close to individuals with facts and opinions that were both rational and irrational. They portrayed vaccines as foreign substances, or poisons, capable of causing more harm than good.¹¹⁹ Vaccinations were described as a "surgical operation,"¹²⁰ not routine medical care. The effectiveness of the vaccine itself led to a progressive, albeit apathetic, argument: since the vaccine has worked, why should individuals continue to be subjected to the harms of vaccination unless there exists an actual threat of disease in the commu-

¹¹⁵ See BAZIN, *supra* note 71, at 130.

¹¹⁶ See, e.g., *The Smallpox Danger*, N.Y. TIMES, Dec. 11, 1900, at 10.

¹¹⁷ *Vaccination Does Have Perils*, N.Y. TIMES, Mar. 1915.

¹¹⁸ SMILLIE, *supra* note 93, at 134.

¹¹⁹ See, e.g., *Cram v. Sch. Bd.*, 136 A. 263, 263 (N.H. 1927) (evaluating the claim of a father of an unvaccinated child who sought relief from state school vaccination law on the grounds that "vaccination consists of performing a surgical operation by injecting a poison, the ingredients of which are not known, into the blood of [his] daughter and that will endanger her health and life, and he will not permit it to be done. . .").

¹²⁰ *Id.*

nity? Public health authorities were characterized as abusive, untrustworthy, and paternalistic.¹²¹ Resisting public health efforts was equated with fighting government oppression. Antivaccinationists asserted that vaccinations (and even medical treatment for smallpox)¹²² were contrary to their sacred religious beliefs.¹²³ As discussed in Part IV.B, these and other sentiments continue to be expressed today.¹²⁴

III. LEGISLATIVE AND JUDICIAL RESPONSES TO VACCINATION POLICIES

Political, philosophical, and social struggles surrounding vaccination are vividly reflected in legislative and judicial debates on the powers, and limits, of the government to compel vaccination. As public health historian George Rosen has observed, local government in colonial America regulated physician inoculation even before Dr. Jenner's historic discovery.¹²⁵ Laws mandating immunization first appeared in the early nineteenth century.¹²⁶ By the time of the landmark United States Supreme Court decision in *Jacobson v. United States* (affirming the power of the

¹²¹ See HAYS, *supra* note 56, at 280.

¹²² See, e.g., *Removed Smallpox Patient: Health Board Refused to Permit Christian Scientist to Heal Him—Vaccinated Every One in the House*, N.Y. TIMES, Aug. 11, 1901, at 6; *Would Not Have A Doctor For Smallpox*, N.Y. TIMES, 1909.

¹²³ See, e.g., *Brown v. Stone*, 378 So. 2d 218 (Miss. 1979).

¹²⁴ See, e.g., Aspinwall, *supra* note 7, at 109, 112-13.

¹²⁵ ROSEN, *supra* note 11, at 162-65:

In April, 1721, ships from the West Indies brought smallpox to Boston. [The Reverend Cotton] Mather proposed to the physicians of Boston that they undertake inoculation. Only [Dr. Zabdiel] Boylston responded . . .

As early as 1722, the selectmen of Boston had insisted that Boylston should not inoculate without license and the consent of the authorities. By 1760, legal safeguards regulating the conditions under which inoculation could be performed had been set up.

Id. at 162-63.

¹²⁶ GRAD, *supra* note 94, at 72; WILLIAM P. PRENTICE, *POLICE POWERS ARISING UNDER THE LAW OF OVERRULING NECESSITY* 132 (1894) ("Compulsory vaccination has been instituted . . . by the laws of several States, in respect to minors. City ordinances regulate it, but the indirect methods of excluding children not vaccinated from schools and factories, or, in case of immigrants, insisting upon quarantine, and the offer of fee vaccination . . . are more effective."); Charles L. Jackson, *State Laws on Compulsory Immunization in the United States*, 84 PUB. HEALTH REP. 787 (1969) (documenting that Massachusetts enacted the first mandatory vaccination law in 1809).

state to compel vaccination) in 1905, many states had already required citizens to submit to smallpox vaccination, among other diseases.¹²⁷ In this section, we explain state vaccination laws, principally state school vaccination laws, as well as the politics and constitutionality of compulsory vaccination.

A. *School Vaccination Law and Policy in Early America*

In the 1830s, as Britain and America struggled toward enacting and implementing compulsory vaccination policies, a second policy of compulsory education was also on the rise.¹²⁸ Although the two policies were not uniformly combined (in the form of school vaccination requirements) until the 1860s, the immunization of school children in America began early. As John Duffy notes:

[T]he rise of small pox coincided with the enactment of compulsory school attendance laws and the subsequent rapid growth in the number of public schools. Since the bringing together of large numbers of children clearly facilitated the spread of smallpox, and since vaccination provided a relatively safe preventive, it was natural that compulsory school attendance laws should lead to a movement for compulsory vaccination.¹²⁹

Not surprisingly, the driving force behind school vaccination requirements and compulsory vaccination laws were outbreaks of smallpox.¹³⁰ Cyclical smallpox epidemics provided the political impetus to enact

¹²⁷ See *Jacobson v. Massachusetts*, 197 U.S. 11 (1905); *Viemester v. White*, 72 N.E. 97 (N.Y. 1904) (upholding New York statute excluding from public schools all children who had not been vaccinated); William Fowler, *Principal Provisions of Smallpox Vaccination Laws and Regulations in the United States*, 56 PUB. HEALTH REP. 167 (1941) (noting that only six states did not have a smallpox vaccination statute); William Fowler, *State Diphtheria Immunization Requirements*, 57 PUB. HEALTH REP. 325 (1942) (noting that it was not until the late 1930s that compulsory immunization laws pertaining to other diseases were enacted).

¹²⁸ See, e.g., HARVEY CORTLANDT VOORHEES, *THE LAW OF THE PUBLIC SCHOOL SYSTEM* 15-19 (1916); John Duffy, *School Vaccination: The Precursor to School Medical Inspection*, 33 J. HIST. MED. 344 (1978).

¹²⁹ Duffy, *supra* note 128, at 345.

¹³⁰ Although there were outbreaks of other diseases, Pasteur had not yet developed the cholera vaccine and the next major vaccine discoveries, Salk's discovery of the polio vaccine and Smith's discovery of a diphtheria toxin, did not occur until the early and middle twentieth century.

compulsory vaccination laws and allowed scientists to study the effects of vaccination on disease transmission. School vaccination requirements were often part of larger bills to promote comprehensive public vaccination. A bill proposed by the Mayor of the City of New York to the New York State Assembly required smallpox vaccination for all citizens, subject to proof via a lawfully issued certificate from a medical practitioner.¹³¹ The bill specifically required vaccinations for immigrants, persons in hospitals and penal institutes, and children seeking admission to public schools.¹³²

Local municipalities, including counties, cities, and boards of education, were among the first to attempt to impose school vaccination laws and policies. In 1827, Boston became the first city to require all children entering the public schools to give evidence of vaccination.¹³³ Recently organized state boards of health also advocated strongly in favor of and attempted to enforce statewide school vaccination requirements. The Commonwealth of Massachusetts incorporated its own school vaccination law in 1855, New York in 1862, Connecticut in 1872, and Pennsylvania in 1895.¹³⁴ Other northeast states soon passed their own requirements. The trend toward compulsory child vaccination as a condition of school attendance eventually spread to states in the Midwest (e.g., Indiana (1881), Illinois and Wisconsin (1882), Iowa (1889)), South (e.g., Arkansas and Virginia (1882)), and West (e.g., California (1888)), though not without considerable political debate.¹³⁵

Antivaccinationists strongly opposed the initial passage of school vaccination requirements for many of the same arguments discussed above,¹³⁶ and attempted to repeal or thwart such laws through political routes, judicial challenges,¹³⁷ and outright refusals to comply. In 1894, antivaccinationists in Rhode Island came within one vote of repealing an existing state school vaccination law.¹³⁸ The Anti-Vaccination League and others in Pennsylvania narrowly failed to repeal the two-year-old state school vaccination law in Pennsylvania.¹³⁹ Antivaccinationists and others, including politicians, physicians, and ministers in Milwaukee, Wisconsin, fought the city health officer as he attempted to quarantine and isolate

¹³¹ Letter from Lewis A. Sayre, *supra* note 67, at 5.

¹³² *Id.*

¹³³ Duffy, *supra* note 128, at 345.

¹³⁴ *Id.* at 345-46.

¹³⁵ *Id.* at 349-51.

¹³⁶ See *supra* Part II.C.

¹³⁷ See *infra* Part III.B.

¹³⁸ Duffy, *supra* note 128, at 346.

¹³⁹ *Id.* at 350-51.

smallpox victims in 1894.¹⁴⁰ These efforts later contributed to a revamping of the powers of the city health board.¹⁴¹ In Louisiana, a city physician showed high school girls a picture of a boy who contracted erysipelas, a painful skin disease, as a result of smallpox vaccination. The girls naturally refused to be vaccinated despite a mandatory policy of the state board of health.¹⁴² Parents in Haledon, New Jersey convinced the local school board to overturn a rule requiring children to be vaccinated in 1924.¹⁴³

Even where school vaccination laws or policies were passed, enforcement was complicated by active resistance and apathy.¹⁴⁴ During times of epidemic, vaccination rates often ran high, only to drop extensively when diseases passed. In Chicago, such apathy contributed to recurring epidemics of smallpox in 1893-94 when less than ten percent of schoolchildren were vaccinated despite a twelve-year old state law that prohibited the entry of children into school without "satisfactory evidence of a proper and successful vaccination."¹⁴⁵ Local school boards and superintendents often objected to state vaccination laws which authorized newly created state boards of health inspectors to examine vaccination policy and practice at their schools.¹⁴⁶ Local school systems saw such oversight as intrusive, disruptive of school routines, and contrary to statutory and traditional responsibilities of boards of education for all phases of school health programs.¹⁴⁷ School boards in New York, for example, explicitly challenged the authority of state officials to interfere with local school policies. Written vaccination reports were not regularly collected as required by New York state law. Instead, local schools relied on oral assertions of parents or children themselves that the students had been vaccinated.¹⁴⁸ Such early examples of resistance to school vaccination laws eventually tapered off as schools successfully implemented smallpox and later polio immunizations,¹⁴⁹ with marked decreases of these diseases found among children in their respective communities.

¹⁴⁰ See, e.g., Judith W. Leavitt, *Politics and Public Health: Smallpox in Milwaukee*, 50 BULL. HIST. OF MED. 553 (1976).

¹⁴¹ Duffy, *supra* note 128, at 351.

¹⁴² *Id.*

¹⁴³ *To Admit Unvaccinated Pupils*, N.Y. TIMES, 1924 (on file with the authors).

¹⁴⁴ See Duffy, *supra* note 128, at 346.

¹⁴⁵ *Id.* at 349.

¹⁴⁶ See JAMES A. TOBEY, PUBLIC HEALTH LAW 85-86 (1926).

¹⁴⁷ *Id.*; see SMILLIE, *supra* note 93, at 285.

¹⁴⁸ Duffy, *supra* note 128, at 347.

¹⁴⁹ See, e.g., Edith Evans Asbury, *City Will Provide Free Polio Shots For All Under 20*, N.Y. TIMES, Apr. 17, 1955, at A1.

B. *Constitutionality of Compulsory Vaccination*

In addition to political and social challenges to smallpox immunization laws, vaccination policies have been judicially questioned on constitutional and other legal grounds.¹⁵⁰ Perhaps the first American case discussing citizens' objections to vaccination requirements was *Hazen v. Strong*,¹⁵¹ in which the Vermont Supreme Court in 1830 upheld the power of a local town council to pay for the vaccination of persons exposed even though there were no cases of smallpox in the community.¹⁵² As in *Hazen*, the judiciary has traditionally aligned itself with the views of state legislators, school board officials, and public health experts who supported the need for vaccination to preserve communal well-being.¹⁵³

Many courts, consistent with the principles of separation of powers and rules of evidence, carved themselves a limited role in reviewing legal challenges to school vaccination policies. As illustrated by the Pennsylvania Supreme Court in *Duffield v. School District*¹⁵⁴ (upholding a school vaccination law):

We are not required to determine judicially whether the public belief in the efficacy of vaccination is absolutely right or not. We are to consider what is reasonable in view of the present state of medical knowledge and the concurring opinions of the various boards and officer charged with the care of the public health It is not an error in judgment, or a mistake upon some abstruse question of medical science, but an abuse of discretionary power, that justifies the courts in interfering with the conduct of the school board or setting aside its action.¹⁵⁵

Although most courts were loathe to replace their own opinions with those of lawmakers and public health officials, some courts viewed school vaccination laws negatively. Individuals argued for narrow interpretations of statutes passed pursuant to such powers or asserted a local governmental entity lacked similar authority. State school vaccination laws in Illinois (1897), Wisconsin (1897), Utah (1900), and North Dakota (1919) were

¹⁵⁰ For a thorough listing of early state school vaccination cases through 1926, see TOBEY, *supra* note 146, at 85-91.

¹⁵¹ *Hazen v. Strong*, 2 Vt. 427 (1830).

¹⁵² *Id.*; see TOBEY, *supra* note 146, at 90.

¹⁵³ TOBEY, *supra* note 146, at 89-98.

¹⁵⁴ *Duffield v. Sch. Dist.*, 29 A. 742 (Pa. 1894).

¹⁵⁵ *Id.* at 743.

interpreted by their respective state courts to apply only when smallpox was present or threatening to a community.¹⁵⁶ Other courts determined that local school boards lacked the ability, absent explicit statutory authorization, to implement school vaccination policies.¹⁵⁷ Judges concluded that local boards of health and education, as mere subsidiaries of state governments, have only those powers expressly or impliedly granted.¹⁵⁸

These and other cases centered on the authorization of power of the particular governmental entity seeking to impose school vaccination requirements. Fewer legal challenges focused on the inherent power of the state to compel vaccination.¹⁵⁹ State sovereign powers were considered more than sufficient to authorize vaccination.¹⁶⁰ However, despite what many viewed as plenary authority for states to mandate vaccination, early courts also carefully listened to and crafted individual constitutional objections to vaccination requirements. These somewhat divergent observations are clearly seen in the United States Supreme Court's benchmark decision in 1905, *Jacobson v. Massachusetts*.¹⁶¹

1. *Police Powers and Their Limits: Jacobson v. Massachusetts*

In *Jacobson*, the Supreme Court considered a constitutional challenge to a general vaccination requirement for smallpox. Massachusetts enacted a law at the turn of the twentieth century empowering municipal boards of health to require the vaccination of inhabitants if necessary for the public health or safety.¹⁶² The Cambridge Board of Health, under authority of this statute, adopted the following regulation: "Whereas, smallpox has been prevalent to some extent in the city of Cambridge and still continues to increase; and whereas, it is necessary for the speedy extermination of the

¹⁵⁶ See *Lawbaugh v. Bd. of Educ.*, 52 N.E. 850 (Ill. 1899); *Potts v. Breen*, 47 N.E. 81 (Ill. 1897); *Rhea v. Bd. of Educ.*, 171 N.W. 103 (N.D. 1919); *State ex rel. Cox v. Bd. of Educ.*, 60 P. 1013 (Utah 1900); *State ex rel. Adams v. Burdge*, 70 N.W. 347 (Wis. 1897).

¹⁵⁷ See *Matthews v. Kalamazoo Bd. of Educ.*, 86 N.W. 1036 (Mich. 1901); see also NEWTON EDWARDS, *THE COURTS AND THE PUBLIC SCHOOLS* 577 n.39 (3d ed. 1955) (citing additional cases).

¹⁵⁸ See EDWARDS, *supra* note 157, at 577.

¹⁵⁹ See TOBEY, *supra* note 146, at 91-92.

¹⁶⁰ NORTON T. HERR & ALTON A. BEMIS, *A TREATISE ON THE POWER TO ENACT, PASSAGE, VALIDITY AND ENFORCEMENT OF MUNICIPAL POLICE ORDINANCES* 202 (1887); TOBEY, *supra* note 146, at 90-91.

¹⁶¹ *Jacobson v. Massachusetts*, 197 U.S. 11 (1905).

¹⁶² *Id.* at 12.

disease . . . be it ordered, that all inhabitants of the city . . . be vaccinated”¹⁶³ Like some antivaccinationists,¹⁶⁴ Henning Jacobson refused the vaccination, was convicted by the trial court, and was sentenced to pay a fine of five dollars.¹⁶⁵ The Massachusetts Supreme Judicial Court upheld the conviction,¹⁶⁶ and the case was appealed to the United States Supreme Court in 1905. The defendant Jacobson argued that “a compulsory vaccination law is unreasonable, arbitrary and oppressive, and, therefore, hostile to the inherent right of every freeman to care for his own body and health in such way as to him seems best.”¹⁶⁷ His claim was grounded in constitutional liberty interests which, he asserted, supported natural rights of persons to bodily integrity and decisional privacy.¹⁶⁸

Rejecting Jacobson’s appeal, the Supreme Court adopted a narrower view of individual liberty while emphasizing a more community oriented philosophy in which citizens have duties to one another and to society as a whole.¹⁶⁹ Justice Harlan, writing for the Court, stated:

[T]he liberty secured by the Constitution of the United States . . . does not import an absolute right in each person to be, at all times and in all circumstances, wholly freed from restraint. There are manifold restraints to which every person is necessarily subject for the common good. On any other basis organized society could not exist with safety to its members. Society based on the rule that each one is a law unto himself would soon be confronted with disorder and anarchy. Real liberty for all could not exist under the operation of a principle which recognizes the right of each individual person to use his own, whether in respect of his person or his property, regardless of the injury that may be done to others.¹⁷⁰

Under a social compact theory, then, “a community has the right to protect itself against an epidemic of disease which threatens the safety of its

¹⁶³ *Id.*

¹⁶⁴ See, e.g., *Vaccination Before Prison*, N.Y. TIMES, Dec. 18, 1897, at 4 (describing the case of an Atlanta, Georgia woman who refused to be vaccinated and was ordered to pay a \$25.75 fine and spend twenty-five days in the city prison, yet she was set free after serving three hours of her sentence when she allowed herself to be vaccinated.).

¹⁶⁵ *Jacobson*, 197 U.S. at 14.

¹⁶⁶ *Commonwealth v. Pear*, 66 N.E. 719 (Mass. 1903), *aff’d*, 197 U.S. 11 (1905).

¹⁶⁷ *Jacobson*, 197 U.S. at 26.

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

members" consistent with a state's traditional police powers.¹⁷¹ Police powers refer to the broad power of a sovereign state to regulate matters affecting the health, safety, and general welfare of the public.¹⁷² Police powers authorize an array of governmental action in the interest of public health, among other priorities.¹⁷³ The legacy of *Jacobson* is surely its defense of social welfare philosophy and unstinting support of police power regulation.

However, the Court also recognized the limits of these broad powers. Utilizing state police powers in support of vaccination requirements or other public health initiatives is constitutionally permissible only if the powers are exercised in conformity with the principles of:

(1) *public health necessity*—Justice Harlan, in *Jacobson*, insisted that police powers must be based on the "necessity of the case" and could not be exercised in "an arbitrary, unreasonable manner" or "go so far beyond what was reasonably required for the safety of the public;"¹⁷⁴

(2) *reasonable means*—The *Jacobson* Court introduced a means/ends test that required a reasonable relationship between the public health intervention and the achievement of a legitimate public health objective.¹⁷⁵ Even though the objective of the legislature may be valid and beneficent, the methods adopted must have a "real or substantial relation" to protection of the public health, and cannot be "a plain, palpable invasion of rights;"¹⁷⁶

(3) *proportionality*—"[T]he police power of a State," said Justice Harlan, "may be exerted in such circumstances or by regulations so arbitrary and oppressive in particular cases as to justify the interference of the courts to prevent wrong and oppression."¹⁷⁷ Thus, a public health regulation may be unconstitutional if the intervention is gratuitously onerous or unfair; and

(4) *harm avoidance*—While those who pose a risk to the community can be required to submit to compulsory measures, including vaccination,

¹⁷¹ *Id.* at 27.

¹⁷² See, e.g., ERNST FREUND, THE POLICE POWER: PUBLIC POLICY AND CONSTITUTIONAL RIGHTS 3-4 (1904); James G. Hodge, Jr., *The Role of New Federalism and Public Health Law*, 12 J.L. & HEALTH 309, 318-20 (1998).

¹⁷³ Hodge, *supra* note 172, at 323-25.

¹⁷⁴ *Jacobson*, 197 U.S. at 28.

¹⁷⁵ *Id.* at 26. See, e.g., TOBEY, *supra* note 146, at 90.

¹⁷⁶ *Jacobson*, 197 U.S. at 31. See *Nebbia v. New York*, 291 U.S. 502, 525 (1933) (determining that public welfare regulation must not be "unreasonable, arbitrary, or capricious, and that the means selected must have a real and substantial relation to the object sought to be obtained").

¹⁷⁷ *Jacobson*, 197 U.S. at 38-39.

for the common good, the measure itself should not pose a health risk to its subject. Jacobson presented no medical evidence that he was not a "fit person" for smallpox vaccination.¹⁷⁸ However, requiring a person to be immunized despite knowing harm would be "cruel and inhuman in the last degree."¹⁷⁹

Thus, while *Jacobson* stands firmly for the proposition that police powers authorize states to compel vaccination for the public good, government power must be exercised reasonably to avoid constitutional scrutiny. The acts of a board of health, it has been held, are limited to those which are essential to protect the public health.¹⁸⁰ States, for example, could not impose vaccination on a person who is hyper-susceptible to adverse effects, such as a severe allergic reaction.¹⁸¹

States, however, may condition certain benefits upon the individual based on whether he or she has been vaccinated. Are state school vaccination laws, which condition the attendance at compulsory schooling upon the child's vaccination for various diseases, compulsory public health initiatives? While school vaccination may be regarded as "conditional" rather than coercive where the parent has the option of home schooling,¹⁸² most courts deem school vaccination for many parents as mandatory. As the Nevada Supreme Court stated in *Allison v. Merck*.¹⁸³

"Ms. Allison never had any real choice as to whether her son was to receive the vaccine. . . . Not only was she, let us say, 'strongly encouraged' to make the decision . . . , she was faced with the Hobson's choice of either having the vaccine administered or not having the privilege of sending her son to private or public school. . . . Choosing not to have her son attend school, of course, would have subjected her to criminal penalties."¹⁸⁴

Despite the mandatory nature of compulsory school vaccination laws, the state's power to require children to be vaccinated as a condition of

¹⁷⁸ *Id.* at 36-37.

¹⁷⁹ *Id.* at 39-40.

¹⁸⁰ *State v. Speyer*, 32 A. 476 (Vt. 1895).

¹⁸¹ *Jacobson*, 197 U.S. at 39.

¹⁸² *See, e.g., VOORHEES, supra* note 128, at 20.

¹⁸³ *Allison v. Merck*, 878 P.2d 948 (Nev. 1994) (addressing a tort action against manufacturer for vaccine induced injury); *see also In re Christine M.*, 595 N.Y.S.2d 606 (1992) (addressing parental refusal to vaccinate child against measles resulting in finding of child neglect).

¹⁸⁴ *Allison*, 878 P.2d at 954-55 n.9 (citations omitted).

school entrance has been widely accepted and judicially sanctioned.¹⁸⁵ In *Zucht v. King*, the United States Supreme Court specifically upheld a local government mandate for vaccination as a prerequisite for attendance in public school.¹⁸⁶ Justice Brandeis held that states may delegate to a municipality the power to order vaccination consistent with the Constitution and prior decisions of the Court;¹⁸⁷ the municipality can, in turn, vest broad discretion in the board of health to apply and enforce the law.¹⁸⁸ Thus, local municipalities may determine the manner and type of vaccination administered and set other regulations consistent with its authority.¹⁸⁹ Enforcement mechanisms may include denying unvaccinated children admission to schools (which is commonly employed),¹⁹⁰ criminally punishing the parents of unvaccinated children (which is seldom used in modern day),¹⁹¹ or ordering a school to be closed (an extreme measure which is also rarely undertaken).¹⁹²

2. *Public Health and Religion: Challenges Under the First Amendment*

Antagonists of vaccination have framed additional constitutional objections in terms of the religious clauses of the First Amendment: "Congress shall make no law [1] respecting an establishment of religion or [2] prohibiting the free exercise thereof. . . ."¹⁹³ The first clause is referred

¹⁸⁵ See, e.g., *Maricopa County Health Dep't v. Harmon*, 750 P.2d 1364 (Ariz. Ct. App. 1987); *Cude v. State*, 377 S.W.2d 816 (Ark.1964) (citing numerous precedents); *Brown v. Stone*, 378 So. 2d 218 (Miss. 1979); EDWARDS, *supra* note 157, at 574 n.29 (citing numerous additional cases).

¹⁸⁶ *Zucht v. King*, 260 U.S. 174 (1922). State supreme courts also routinely upheld school vaccination requirements. See, e.g., *People ex rel. Hill v. Bd. of Educ.*, 195 N.W. 95 (Mich. 1923).

¹⁸⁷ See *Zucht*, 260 U.S. at 176 (citing *Laurel Hill Cemetery v. San Francisco*, 216 U.S. 358 (1910)); see also *Lieberman v. Van De Carr*, 199 U.S. 552 (1905).

¹⁸⁸ *Zucht*, 260 U.S. at 176; see also EDWARDS, *supra* note 157, at 578-79.

¹⁸⁹ See, e.g., EDWARDS, *supra* note 157, at 578-84.

¹⁹⁰ See, e.g., *State v. Zimmerman*, 90 N.W. 783 (Minn. 1902); *State v. Bd. of Educ.*, 60 P. 1013 (Utah 1900); EDWARDS, *supra* note 157, at 580 n.52 (citing additional cases).

¹⁹¹ See, e.g., *People v. Ekerold*, 105 N.E. 670 (N.Y. 1914). But see *State v. Cole*, 119 S.W. 424 (Mo. 1909); EDWARDS, *supra* note 157, at 584-85.

¹⁹² See, e.g., *Globe Sch. Dist. No. 1 v. Bd. of Health*, 179 P. 55 (Ariz. 1919). But see *Crane v. Sch. Dist. No. 14*, 188 P. 712 (Ore. 1920) (holding that state law must specifically authorize board of health to close schools).

¹⁹³ U.S. CONST. amend. I. The First Amendment has been made applicable to the states by incorporation into the Fourteenth Amendment. *Cantwell v. Connecticut*, 310 U.S. 296, 303 (1940); see, e.g., *Arlin M. Adams & Charles J. Emmerich*,

to as the Establishment Clause;¹⁹⁴ the second is the Free Exercise Clause.¹⁹⁵ If the state requires an individual to conform to public health standards (e.g., submitting to immunization or treatment) that are inconsistent with religious practices, such mandate is argued to violate the Free Exercise Clause. While virtually all states currently grant religious exemptions to school vaccination requirements, requesting a person to submit to vaccination against his religious beliefs is generally viewed as constitutional.¹⁹⁶

The Supreme Court's jurisprudence clarifies that the right of free exercise does not relieve an individual of the obligation to comply with a "valid and neutral law of general applicability."¹⁹⁷ In *Prince v. Massachusetts*, for example, the Court held that a mother could be prosecuted under child labor laws for using her children to distribute religious literature. The Court stated: "The right to practice religion freely does not include liberty to expose the community or the child to communicable disease or the latter to ill health or death."¹⁹⁸ The Supreme Court of Arkansas explicitly upheld a compulsory vaccination law in 1965 that did not exempt persons with religious beliefs: "[the] freedom to act according to their religious beliefs is subject to a reasonable regulation for the benefit of society as a whole."¹⁹⁹ A New York court was more controversial in ruling the same:

A Heritage of Religious Liberty, 137 U. PA. L. REV. 1559 (1989); Aspinwall, *supra* note 7, at 109; Sherryl E. Michaelson, Note, *Religion and Morality Legislation: A Reexamination of Establishment Clause Analysis*, 59 N.Y.U. L. REV. 301 (1984).

¹⁹⁴ See, e.g., Michaelson, *supra* note 193, at 301.

¹⁹⁵ See ERWIN CHEMERINSKY, CONSTITUTIONAL LAW 967-68 (1997).

¹⁹⁶ See, for example, *Brown v. Stone*, 378 So. 2d 218, 223 (Miss. 1979):

The protection of the great body of school children . . . against the horrors of crippling and death resulting from [vaccine-preventable disease], demand that children who have not been immunized should be excluded from the school community. . . . To the extent that it may conflict with the religious beliefs of a parent, however sincerely entertained, the interests of the school children must prevail.

See also *Cude v. State*, 377 S.W.2d 816-19 (Ark. 1964) ("According to the great weight of authority, it is within the police power of the State to require that school children be vaccinated . . . and that . . . [it] does not violate the constitutional rights of anyone, on religious grounds or otherwise."); C.S. Patrinelis, Annotation, *Religious Beliefs of Parents as Defense to Prosecution for Failure to Comply with Compulsory Education Law*, 3 A.L.R.2d 1401 (1949).

¹⁹⁷ *Employment Div. v. Smith*, 494 U.S. 872, 879 (1990) (holding that the Free Exercise Clause permits a state to prohibit sacramental peyote use) (quoting *United States v. Lee*, 455 U.S. 252, 263 n.3 (1982) (Stevens, J., concurring)).

¹⁹⁸ *Prince v. Massachusetts*, 321 U.S. 158, 166-67 (1944).

¹⁹⁹ *Wright v. DeWitt Sch. Dist.*, 385 S.W.2d 644, 648 (Ark. 1965).

In a democracy laws are not made to meet the predilections of individuals, nor to feed mistaken views which an individual might hold, when that view is detrimental to the people as a whole. Laws are made for the protection of all, and such laws are enforced even if the law is distasteful to some individual—yes, even if the law is hateful to some individual.²⁰⁰

While states are not constitutionally obliged to grant religious exemptions, the Establishment Clause suggests that they may not be permitted to do so. To the extent the Establishment Clause forbids governments from passing laws which favor religious preferences, it seems arguable that states may not exempt religious objectors from school vaccination requirements. To favor such persons through a religion exemption seems to violate the prohibition against laws "respecting an establishment of religion," even though the Free Exercise Clause arguably protects individuals who claim that vaccination violates their religious beliefs. This tension between the First Amendment religion clauses has been judicially resolved by allowing legislatures the constitutional authority to create exemptions for religious beliefs without violating the Establishment Clause.²⁰¹ Even so, courts sometimes strictly construe religious exemptions, insisting that the belief against compulsory vaccination must be "genuine," "sincere," and an integral part of the religious doctrine.²⁰² Furthermore, persons with ethical or philosophical objections to vaccination not grounded in religious faith are not exempted,²⁰³ unless statutory law so provides.

²⁰⁰ *In re Whitmore*, 47 N.Y.S.2d 143, 145 (1944).

²⁰¹ *Mason v. Gen. Brown Cent. Sch. Dist.*, 851 F.2d 47 (2d Cir. 1988); *Berg v. Glen Cove City Sch. Dist.*, 853 F. Supp. 651 (E.D.N.Y. 1994).

²⁰² *Brown v. City Sch. Dist.*, 429 N.Y.S.2d 355 (Sup. Ct. 1980) (holding that given genuineness and sincerity of parent's religious beliefs and absence of risk to the public, parent was entitled to religious exemption); *McCartney v. Austin*, 293 N.Y.S.2d 188 (Sup. Ct. 1968) (holding that vaccination statute did not interfere with freedom of worship of Roman Catholic faith, which does not have any proscription against vaccination); *In re Elwell*, 284 N.Y.S.2d 924, 932 (Fam. Ct. 1967) (while parents were members of recognized religion, their objections to polio vaccine were not based on the tenets of their religion). *But see Berg*, 853 F. Supp. at 655 (finding that although nothing in Jewish religion prohibited vaccination, parents still had a sincere religious belief).

²⁰³ *Mason*, 851 F.2d at 47 (holding that parents' sincerely held belief that immunization was contrary to "genetic blueprint" was a secular, not a religious, belief); *Hanzel v. Arter*, 625 F. Supp. 1259 (S.D. Ohio 1985) (finding that parents with objections to vaccination based on "chiropractic ethics" were not exempt).

Where state legislatures limit the scope of religious exemptions by applying them only to “recognized” and “established” churches or religious denominations, individuals with sincerely held religious convictions that are not recognized or established have challenged these statutory provisions on two grounds. First, because these laws provide preferential treatment to particular religious doctrines, they argue that the provisions violate the Establishment Clause. In *Sherr v. Northport-East Northport Union Free School District*,²⁰⁴ a federal district court upheld an exemption for children of parents with “sincere religious beliefs,”²⁰⁵ but found a provision requiring them to be “bona fide members of a recognized religious organization” in violation of the Establishment Clause.²⁰⁶ Other courts have found inapposite. A federal district court in Kentucky, for example, held that exemption for “nationally recognized and established church or religious denomination” did not violate the Establishment Clause.²⁰⁷

3. Other Constitutional Arguments

To the extent that statutory religious exemptions to school vaccination laws discriminate against persons with non-established religious beliefs, it has been argued that the provisions violate equal protection of the law under the Fourteenth Amendment.²⁰⁸ The Equal Protection Clause prohibits government from intentionally discriminating against individuals of suspect classes (e.g., classes based on race, religion, national origin, or sex). In *Dalli v. Board of Education*,²⁰⁹ a Massachusetts state court found that a state exemption for objectors who subscribe to “tenets and practice of a recognized church or religious denomination” violates equal protection by extending preferred treatment to these groups while denying it to others with sincere, though unrecognized, religious objections.²¹⁰ In *Brown v. Stone*, the Mississippi Supreme Court held that a religious exemption violates equal protection of the laws because it “discriminate[s] against the

²⁰⁴ *Sherr v. Northport-East Northport Union Free Sch. Dist.*, 672 F. Supp. 81 (E.D.N.Y. 1987).

²⁰⁵ *Id.* at 90-91.

²⁰⁶ *Id.* at 91.

²⁰⁷ *Kleid v. Bd. of Educ.*, 406 F. Supp. 902 (W.D. Ky. 1976).

²⁰⁸ See, e.g., James G. Dwyer, *The Children We Abandon: Religious Exemption to Child Welfare and Education Laws as Denials of Equal Protection to Children of Religious Objectors*, 74 N.C. L. REV. 1321 (1996).

²⁰⁹ *Dalli v. Bd. of Educ.*, 267 N.E.2d 219 (Mass. 1971).

²¹⁰ *Id.* at 221-22.

great majority of children whose parents have no such religious convictions."²¹¹

Outside the context of the First Amendment, equal protection arguments that school vaccination laws discriminate against school children to the exclusion of others were rejected by the principles stated in the United States Supreme Court's opinion of *Adams v. Milwaukee*.²¹² Lawmakers may choose to apply the law to selective groups, like children attending school, without violating the equal protection clause provided that such application does not discriminate against protected classes (i.e., a state law requiring vaccination for boys but not girls).

Other constitutional arguments have been raised with little success. In *Viemester v. White*,²¹³ a New York parent challenged a school vaccination requirement as interfering with his child's constitutional right to an education. The court, however, found no constitutional right to an education under the New York State Constitution and thus, no limit on the sort of reasonable regulations which the state legislature chose to impose upon the privilege of a public education.²¹⁴ In 1951, parents of three children in Arkansas challenged the state's administrative requirement that all children be vaccinated before attending school on the grounds that it is "so arbitrary, capricious, and unreasonable that its enforcement . . . would amount to a deprivation of their liberty and property without due process of law. . . ."²¹⁵ Rejecting their claim consistent with *Jacobson*, the court held that the parents "misconceived the situation."²¹⁶ Finally, at least one court has held that school vaccination laws do not constitute an illegal search and seizure in violation of the Fourth Amendment.²¹⁷

Table 1 below summarizes in chronological order some of the important cases decided by the United States Supreme Court and federal and state courts concerning governmental vaccination policies [many of which are discussed or referenced above]:

²¹¹ *Brown v. Stone*, 378 So. 2d 218, 223 (Miss. 1979).

²¹² *Adams v. Milwaukee*, 228 U.S. 572 (1913); see also EDWARDS, *supra* note 157, at 574 n.29 (citing *French v. Davidson*, 77 P. 663 (Cal. 1904)).

²¹³ *Viemester v. White*, 84 N.Y.S. 712 (1903), *aff'd*, 72 N.E. 97 (1904).

²¹⁴ See also *Sadlock v. Bd. of Educ.*, 58 A.2d 218 (N.J. 1948).

²¹⁵ *Seubold v. Fort Smith Special Sch. Dist.*, 237 S.W.2d 884, 885 (Ark. 1951).

²¹⁶ *Id.* at 887; see also *New Braunfels v. Waldschmidt*, 207 S.W. 303 (Tex. 1918).

²¹⁷ *McSween v. Bd. of Sch. Trs.*, 129 S.W. 206 (Tex. Civ. App. 1910).

TABLE 1—
SELECTED FEDERAL AND STATE COURT DECISIONS
REGARDING VACCINATION LAW AND POLICY

Year	Case Decision and Citation	Major Holding
1830	Hazen v. Strong, 2 Vt. 427	Local town council had authority to pay for vaccination of persons exposed even though there were no cases of smallpox in the community.
1894	Duffield v. Sch. Dist., 29 A. 742 (Pa.)	School board regulation that prohibited children not vaccinated from smallpox from attending school was reasonable based on a current outbreak and expert opinions on vaccination's efficacy.
1904	Viemester v. White, 84 N.Y.S. 712, <i>aff'd</i> , 72 N.E. 97	No constitutional right to an education exists in the New York Constitution and thus, there is no limit on the type of reasonable regulation (including vaccination requirements) that may be imposed on public education by the legislature.
1905	Jacobson v. Massachusetts, 197 U.S. 11	The City of Cambridge may require its citizens to be vaccinated for smallpox provided certain protections for the individual are accommodated consistent with liberty principles under the Due Process Clause.
1910	McSween v. Bd. of Sch. Trs., 129 S.W. 206 (Tex. Civ. App.)	School vaccination laws do not constitute an illegal search and seizure violating the Fourth Amendment.

Year	Case Decision and Citation	Major Holding
1913	Adams v. Milwaukee, 228 U.S. 572	Vaccination laws do not discriminate against school children to the exclusion of others in violation of the Equal Protection Clause of the Fourteenth Amendment.
1922	Zucht v. King, 260 U.S. 174	States may delegate to a municipality the power to order vaccination and the municipality may then give broad discretion to the board of health to apply and enforce the regulation.
1927	Cram v. Sch. Bd., 136 A. 263 (N.H.)	A father's claim that vaccination of daughter should not be required because it will "endanger her health and life" by "performing a surgical operation by injecting a poison . . . into [her] blood" is rejected based on <i>Jacobson</i> .
1944	Prince v. Massachusetts, 321 U.S. 158	A mother can be prosecuted under child labor laws for using her children to distribute religious literature. The First Amendment's Free Exercise Clause does not allow for the right to expose the community or one's children to harm from disease.
1951	Seubold v. Fort Smith Special Sch. Dist., 237 S.W.2d 884 (Ark.)	School vaccination requirements do not deprive individuals of liberty and property interests without due process of the law.
1963	State ex rel. Mack v. Bd. of Educ., 204 N.E.2d 86 (Ohio Ct. App. 1963)	A child does not have an absolute right to enter school without immunization against polio, smallpox, pertussis, and tetanus

Year	Case Decision and Citation	Major Holding
		on the basis of his parents' objections to his vaccination. The school board has authority to make and enforce rules and regulations to secure immunization.
1964	Cude v. State, 377 S.W.2d 816 (Ark.)	Parents have no legal right to prevent vaccination of children when required to attend school even if their objections are based on good faith religious beliefs in accordance with <i>Prince</i> .
1965	Wright v. DeWitt Sch. Dist., 385 S.W.2d 644 (Ark.)	A compulsory vaccination law with no religious exemption is constitutional because the right of free exercise is subject to reasonable regulation for the good of the community as a whole.
1968	McCartney v. Austin, 293 N.Y.S.2d 188	New York's vaccination statute did not interfere with the freedom to worship in the Roman Catholic faith because the religion did not proscribe vaccination.
1971	Dalli v. Bd. of Educ., 267 N.E.2d 219 (Mass.)	State exemption for objectors who believe in the "tenets and practices of a recognized church of religious denomination" violates the Equal Protection Clause by giving preferential treatment to certain groups over others who have sincere, though unrecognized, religious objections.
1976	Kleid v. Bd. of Educ., 406 F. Supp. 902 (W.D. Ky.)	Requirement that parents be members of a "nationally recognized and established church

Year	Case Decision and Citation	Major Holding
		or religious denomination" to qualify for religious exemption to vaccination mandate did not violate Establishment Clause.
1979	Brown v. Stone, 378 So.2d 218 (Miss.)	Religious exemption violates Equal Protection Clause because it "discriminates against the great majority of children whose parents have no such religious convictions."
1985	Hanzel v. Arter, 625 F. Supp. 1259 (S.D. Ohio)	Parents' objections to vaccination based on "chiropractic ethics" did not fall under the protection of the Establishment Clause and therefore, their children were not exempt from the statutory mandates.
1987	Sherr v. Northport-East Northport Union Free Sch. Dist., 672 F. Supp. 81 (E.D.N.Y.)	Requirement that parents be "bona fide members of a recognized religious organization" to be exempt on religious grounds from school vaccination requirement violates the Establishment Clause.
1987	Maricopa County Health Dept. v. Harmon, 750 P.2d 1364 (Ariz.)	Health department had authority to exclude unvaccinated children from school even if there were no reported cases of the disease in question and did so without violating the right to public education in the Arizona Constitution.
1988	Mason v. Gen. Brown Cent. Sch. Dist., 851 F.2d 47 (2d Cir.)	The parents' sincerely held belief that immunization was contrary to the "genetic blueprint" was a secular, not religious, belief, and thus their children's required vaccination did not violate Establishment Clause.

Year	Case Decision and Citation	Major Holding
1994	Berg v. Glen Cove City Sch. Dist., 853 F. Supp. 651 (E.D.N.Y.)	Jewish parents had sincere religious belief regarding vaccinations even though nothing in their religion prohibited vaccination.
2000	Farina v. Bd. of Educ., 116 F. Supp. 2d 503 (S.D.N.Y.)	Catholic parents' beliefs regarding vaccinations were personal and medical and therefore not adequate basis to recover damages from the Board of Education based on its refusal to accept their religious exemption.
2001	Jones v. State Dep't of Health, 18 P.3d 1189 (Wyo.)	Health Department had no authority to require a student to receive a Hepatitis B immunization or to require a student applying for a waiver from immunization requirements to provide a reason for a medical contraindication to immunizations.
2001	Bowden v. Iona Grammar Sch., 726 N.Y.S.2d 685 (App. Div.)	Parents who followed the practices of Temple of the Healing Spirit were entitled to a religious exemption to vaccination requirements for their child because the state statute did not qualify which religions were eligible.

C. Modern State School Vaccination Laws

The early successes of school vaccination laws against most political, legal, and social challenges helped lay the foundation for modern immunization statutes. Since the introduction of smallpox vaccination policies in the mid-to-late 1800s, states have amended them to include additional

diseases as new vaccines become available.²¹⁸ Many existing school vaccination laws were enacted in response to the transmission of measles in schools in the 1960s and 1970s.²¹⁹ State legislatures at that time were influenced by the significantly lower incidence rates of measles among school children in states with comprehensive immunization laws.²²⁰ They were also influenced by the experience of states that strictly enforced vaccination requirements and school exclusions in outbreak situations without significant community opposition.²²¹ Rather than having health departments require immunization in emergency conditions, legislatures acted to prevent disease by mandatory immunization as a condition of enrollment or attendance in schools or licensed day care facilities.²²²

The CDC publishes a schedule of immunizations²²³ based on the recommendations of the Advisory Committee on Immunization Practices ("ACIP"), the American Academy of Pediatrics' Committee on Infectious Diseases, and the American Academy of Family Physicians.²²⁴ All states, as a condition of school entry, now require proof of vaccination against a number of diseases on the immunization schedule (e.g., diphtheria, measles, rubella, and polio) subject to approval at the state level by public health

²¹⁸ Jackson, *supra* note 126, at 788.

²¹⁹ Orenstein & Hinman, *supra* note 8, at S20.

²²⁰ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Measles and School Immunization Requirements—United States, 1978*, 27 MORBIDITY & MORTALITY WKLY. REP. 303 (1978) (documenting that states which strictly enforced vaccination laws had measles incidence rates more than fifty percent lower than in other states); see K.B. Robbins et al., *Low Measles Incidence: Association with Enforcement of School Immunization Laws*, 71 AM. J. PUB. HEALTH 270 (1981) (noting that states with low incidence rates were significantly more likely to have, and enforce, laws requiring immunization of the entire school population).

²²¹ John P. Middaugh & Lawrence D. Zyla, *Enforcement of School Immunization Law in Alaska*, 239 JAMA 2128 (1978).

²²² Orenstein & Hinman, *supra* note 8, at S19.

²²³ Advisory Comm. on Immunization Practices, *Combination Vaccines for Childhood Immunization*, 48 MORBIDITY & MORTALITY WKLY. REP. 1 (1999). Current CDC recommendations are available at <http://www.cdc.gov>.

²²⁴ Advisory Comm. on Immunization Practices, *General Recommendations on Immunization*, 38 MORBIDITY & MORTALITY WKLY. REP. 205 (1989) (updating Advisory Comm. on Immunization Practices, *General Recommendations on Immunization*, 32 MORBIDITY & MORTALITY WKLY. REP. 1 (1983)). For a detailed discussion of the process and considerations underlying the approval of new vaccines, see Walter A. Orenstein et al., *Public Health Considerations—United States*, in VACCINES, *supra* note 16, at 1006-10.

authorities or, in some states, formal advisory bodies.²²⁵ These statutes often require schools to maintain immunization records and report information to public health authorities.²²⁶ Such laws are consistent with federally funded immunization programs, which condition a state's receipt of federal funds on its implementation and enforcement of school vaccination regulations.²²⁷

Table 2 below summarizes modern school vaccination laws and requirements among the United States as of January 2002:²²⁸

TABLE 2—
STATE STATUTORY LAWS CONCERNING SCHOOL VACCINATION

State	Statutory Source(s)	DPT	MMR	Polio	Hib	Hep B	Var	Religious Exemption*	Philosophic Exemption**
AL	Ala. Code § 16-30-1	✓	✓	✓			✓	§ 16-30-3	N
AK	Alaska Stat. § 14.30.125	✓	✓	✓	✓		✓	§ 14.07.125	N
AZ	Ariz. Rev. Stat. Ann. § 15-872	✓	✓	✓	✓	✓		§ 15-873	Y
AR	Ark. Code Ann. § 6-18-702	✓	✓	✓			✓	§ 6-18-702	N
CA	Cal. Health & Safety Code § 120325	✓	✓	✓		✓	✓	§ 120365	Y
CO	Colo. Rev. Stat. § 25-4-902	✓	✓	✓		✓	✓	§ 25-4-903	N

²²⁵ See, e.g., Edmund W. Kitch et al., *U.S. Law, in VACCINES*, *supra* note 16, at 1168.

²²⁶ Lawrence O. Gostin & Zita Lazzarini, *Childhood Immunization Registries: A National Review of Public Health Information Systems and the Protection of Privacy*, 274 JAMA 1793, 1795-96 (1995).

²²⁷ See, e.g., Kitch et al., *supra* note 225, at 1168 (citing Public Health Service Act, 42 U.S.C. § 262 (1994); 42 C.F.R. § 51b.204).

²²⁸ For additional and informative tables of school vaccination laws and policies, see also Gordon et al., *supra* note 8, at 260; Jackson, *supra* note 126, at 792-94.

State	Statutory Source(s)	DPT	MMR	Polio	Hib	Hep B	Var	Religious Exemption*	Philosophic Exemption**
CT	Conn. Gen. Stat. § 10-204a	✓	✓	✓		✓	✓	§ 10-204a	N
DE	Del. Code Ann. tit. 14 § 131	✓	✓	✓		✓	✓	§ 14-131	N
DC	D.C. Code Ann. § 31-501	✓	✓	✓	✓	✓	✓	§ 31-506	N
FL	Fla. Stat. Ann. § 232.032	✓	✓	✓		✓	✓	§ 232.032	N
GA	Ga. Code Ann. § 20-2-771	✓	✓	✓	✓	✓	✓	§ 20-2-771	N
HI	Haw. Rev. Stat. § 302A-1154	✓	✓	✓		✓	✓	§ 302A-1156	N
ID	Idaho Code § 39-4801	✓	✓	✓		✓		§ 39-4802	Y
IL	105 Ill. Comp. Stat. § 5/27-8.1	✓	✓	✓		✓		410 ILCS § 315/2	N
IN	Ind. Code Ann. § 20-8.1-7-9.5	✓	✓	✓		✓		§ 20-8.1-7-2	Y
IA	Iowa Code Ann. § 139.9	✓	✓MR	✓				§ 139.9	N
KS	Kan. Stat. Ann. § 72-5209	✓	✓	✓			✓	§ 72-5209	N
KY	Ky. Rev. Stat. Ann. § 214.034	✓	✓	✓		✓	✓	§ 214.036	N
LA	La. Rev. Stat. Ann. § 17:170(A)	✓	✓	✓			✓	§ 17:170(E)	Y
ME	Me. Rev. Stat. Ann. tit. 20-A § 6355	✓	✓	✓			✓	tit. 20-A § 6355	Y
MD	Md. Code Ann. Educ. § 7-403	✓	✓	✓		✓	✓	§ 7-403	N

State	Statutory Source(s)	DPT	MMR	Polio	Hib	Hep B	Var	Religious Exemption*	Philosophic Exemption**
MA	Mass. Gen Laws ch.76, § 15	✓	✓	✓		✓	✓	ch.76, § 15	N
MI	Mich. Comp. Laws Ann. § 333.9208	✓	✓	✓		✓	✓	§ 333.9215	Y
MN	Minn. Stat. Ann. § 121A-15	✓	✓	✓		✓		§ 121A.15	Y
MS	Miss. Code Ann. § 41-23-37	✓	✓	✓			✓	N	N
MO	Mo. Rev. Stat. § 167.181	✓	✓	✓		✓		§ 167.181	N
MT	Mont. Code Ann. § 20-5-403	✓	✓	✓				§ 20-5-405	N
NE	Neb. Rev. Stat. Ann. § 79-217	✓	✓	✓				§ 79-220	Y
NV	Nev. Rev. Stat. § 392.435	✓	✓	✓				§ 392.437	N
NH	N.H. Rev. Stat. Ann. § 141-C:20-a	✓	✓	✓		✓		§ 141-C:20-c	N
NJ	N.J. Stat. Ann. § 26:1A-9	✓	✓	✓				§ 26:1A-9	N
NM	N.M. Stat. Ann. § 24-5-1	✓	✓	✓				§ 24-5-2dd	N
NY	N.Y. Pub. Health Law § 2164	✓	✓	✓		✓		§ 2164	N
NC	N.C. Gen. Stat. § 130A-155	✓	✓	✓		✓		§ 130A-157	N
ND	N.D. Cent. Code § 23-07-17.1	✓	✓	✓				§ 23-07-17.1	Y
OH	Ohio Rev. Code Ann. § 3313.671	✓	✓	✓		✓		§ 3313.671	Y

State	Statutory Source(s)	DPT	MMR	Polio	Hib	Hep B	Var	Religious Exemption*	Philosophic Exemption**
OK	Okla. Stat. Ann. tit. 70, § 1210.191 ²²⁹	✓	✓			✓	✓	§ 1210.192	Y
OR	Or. Rev. Stat. § 433.267	✓DT	✓	✓	✓	✓	✓	§ 433.267	N
PA	21 Pa. Cons. Stat. Ann. § 13-1303a	✓DT	✓	✓		✓	✓	§ 13-1303a	N
RI	R.I. Gen. Laws § 16-38-2	✓	✓	✓	✓	✓	✓	§ 16-38-2	N
SC	S.C. Code Ann. § 44-29-180	✓	✓	✓		✓	✓	§ 44-29-180	N
SD	S.D. Codified Laws § 13-28-7.1	✓	✓	✓			✓	§ 13-28-7.1	N
TN	Tenn. Code Ann. § 49-6-5001	✓	✓	✓			✓	§ 49-6-5001	N
TX	Tex. Code Ann. § 38.001	✓	✓	✓	✓	✓	✓	§ 38.001	N
UT	Utah Code Ann. § 53A-11-301	✓	✓	✓		✓	✓	§ 53A-11-302	N
VT	Vt. Stat. Ann. tit. 18, § 1121	✓DT	✓	✓				§ 1122	Y
VA	Va. Code Ann. § 22.1-271.2	✓	✓	✓			✓	§ 22.1-271.2	N
WA	Wash. Rev. Code Ann. § 28A.210.080	✓	✓	✓		✓		§ 28A.210.080	Y
WV	W. Va. Code § 16-3-4	✓	✓MR	✓				N	N

²²⁹ Oklahoma also requires immunization against Hepatitis A.

State	Statutory Source(s)	DPT	MMR	Polio	Hib	Hep B	Var	Religious Exemption*	Philosophic Exemption**
WI	Wis. Stat. Ann. § 252.04	✓	✓	✓		✓	✓	§ 252.04	Y
WY	Wyo. Stat. Ann. § 21-4-309	✓	✓	✓				§ 21-4-309	N

DPT: Diphtheria/Pertussis/Tetanus vaccine

MMR: Measles/Mumps/Rubella vaccine

POLIO: Poliomyelitis (OPV or IPV) vaccine

HIB: *Haemophilus influenzae* vaccine

HEP B: Hepatitis B vaccine

VAR: Varicella "chicken pox" vaccine

DT—These states allow children to enter or attend school if they have received the requisite doses of the Td (Diphtheria-Tetanus toxoid).²³⁰

MR—These states require measles and rubella vaccine, but not the mumps vaccine.²³¹

* "Religious Exemption" indicates that there is a provision in the statute that allows parents to exempt their children from vaccination if vaccination contradicts their sincere religious beliefs.

** "Philosophic Beliefs" suggests that the statutory language does not restrict the exemption to purely religious or spiritual beliefs. For example, Maine allows restrictions based on "moral, philosophical or other personal beliefs" and California allows objections based on simply "his or her (referring to the parent's) beliefs." The beliefs are frequently qualified in the statutes in terms of sincerity or good faith.

As shown in Table 2, modern school vaccination laws reflect many of the resolutions of political and judicial conflicts arising from smallpox vaccination laws. Modern requirements for compulsory school vaccination coupled with exemptions for medical, religious, and philosophical reasons

²³⁰ Generally, children over seven years of age are not vaccinated for pertussis. The American Academy of Pediatrics strongly recommends the DTP or the DTaP (Diphtheria-Tetanus toxoid with acellular pertussis vaccine) for all children under seven. See Am. Acad. of Pediatrics, *Immunization Protects Children: 2002 Immunization Schedule*, available at <http://www.aap.org/family/parents/immunize.htm> (last visited Mar. 17, 2002).

²³¹ The American Academy of Pediatrics strongly recommends that all children receive these vaccines in the three dose measles, mumps, rubella ("MMR") combination. *Id.*

are a product of political objections and judicial resolution of legal challenges to vaccination policies. While the statutory provisions vary from state to state, all school immunization laws grant exemptions to children with medical contra-indications to immunization, consistent with the judicial and ethical principles of harm avoidance asserted by the Supreme Court in *Jacobson v. Massachusetts*.²³² Thus, if a physician certifies that the child is susceptible to adverse effects from the vaccine, the child is exempt.

Virtually all states also grant religious exemptions for persons who have sincere religious beliefs in opposition to immunization.²³³ Some statutes require parents to disclose their religion, while others are more liberally worded. A minority of states also grant exemptions for parents that profess philosophical convictions in opposition to immunization.²³⁴ These statutes allow parents to object to vaccination because of their "personal," "moral," or "other" beliefs. The process for obtaining an exemption varies depending on the specific state law. In practice, exempted students constitute only a small percentage of total school entrants,²³⁵ but disease

²³² See *supra* Part III.B.2.

²³³ The language of religious exemptions vary from a strict standard ("immunization conflicts with the religious tenets and practices of a recognized church or religious denomination of which the parent . . . is an adherent or member," ARK. CODE ANN. § 6-18-702 (Michie 1999)) to a more vague standard ("belief in a relation to a Supreme Being" DEL. CODE ANN. tit. 14, § 131 (2000)). As of the 1999-2000 school year, only two states (West Virginia and Mississippi) lacked a religious exemption. MISS. CODE ANN. § 41-23-37 (Supp. 1994) (the state Supreme Court held the religious exemption was unconstitutional in *Brown v. Stone*, 378 So. 2d 218 (Miss. 1979)); W. VA. CODE § 16-3-4 (1999). Two religious exemption bills failed in the West Virginia state House and Senate. See 1999 W. VA. S.B. 442; 1999 W. VA. H.B. 2302.

²³⁴ As of the 1999/2000 school year, over a dozen states had exemptions for non-religious objections, such as moral, philosophical, or personal beliefs. ARIZ. REV. STAT. ANN. § 15-873 (West 1998); CAL. HEALTH & SAFETY CODE § 120365 (Deering 1999); IDAHO CODE § 39-4802 (Michie 1998); LA. REV. STAT. ANN. § 17:170(E) (West 1999); ME. REV. STAT. ANN. tit. 20-A, § 6355 (West 1999); MICH. COMP. LAWS ANN. § 333.9215 (West 1998); MINN. STAT. § 121A.15 (1998); NEB. REV. STAT. § 79-221 (2000); N.D. CENT. CODE § 23-07-17.1 (1999); OHIO REV. CODE ANN. § 3313.67.1 (Anderson 1998); OKLA. STAT. tit. 70, § 1210.192 (1998); VT. STAT. ANN. tit. 18, § 1122 (1999); WASH. REV. CODE. § 28A.210.090 (1998); WIS. STAT. ANN. § 252.04 (West 1998).

²³⁵ Nat'l Vaccine Advisory Comm., Ctrs. for Disease Control & Prevention, *Report of the NVAC Working Group on Philosophical Exemptions* (1998) (documenting that the total exemptions in the 1994-95 school year was less than one percent of school entrants).

outbreaks in religious and other communities that have not been vaccinated do occur.²³⁶

IV. THE CONTEMPORARY DEBATE CONCERNING SCHOOL VACCINATION REQUIREMENTS

While modern state legislatures have uniformly settled on the need for school vaccination requirements to ensure childhood immunization rates, substantial debate between vaccination proponents and objectors continues. Such debates, which are reminiscent of earlier disputes over vaccine policy, occur between familiar adversaries over familiar arguments. Those in favor of school vaccination policies, including state legislators and public health officials, cite the significant public health and individual benefits of systematized, comprehensive childhood vaccination. From a public health perspective, state school vaccination laws have been very successful. The rate of fully-immunized school-age children in the United States (greater than ninety-five percent) is as high, or higher, than most other developed countries.²³⁷ The incidence of common childhood illnesses (such as measles,²³⁸ pertussis,²³⁹ mumps, rubella, diphtheria, tetanus,²⁴⁰ and polio²⁴¹) which once accounted for a substantial proportion of child morbidity and mortality²⁴² has significantly declined since the advent and use of vaccines.²⁴³

²³⁶ SMILLIE, *supra* note 93, at 108 (discussing occasional outbreaks of small-pox); Thomas Novotny et al., *Measles Outbreaks in Religious Groups Exempt from Immunization Laws*, 103 PUB. HEALTH REP. 49 (1988); Daniel E. Salmon et al., *Health Consequences of Religious and Philosophical Exemptions From Immunization Laws*, 282 JAMA 47 (1999).

²³⁷ U.S. GEN. ACCT. OFFICE, PREVENTIVE HEALTH CARE FOR CHILDREN: EXPERIENCE FROM SELECTED FOREIGN COUNTRIES (1993).

²³⁸ See John Furesz, *Elimination of Measles in the Americas*, 155 CAN. MED. ASSOC. J. 1423 (1996); Samuel L. Katz & Bruce G. Gellin, *Measles Vaccine: Do We Need New Vaccines or New Programs*, 265 SCI. 1391 (1994).

²³⁹ Donato Greco et al., *A Controlled Trial of Two Acellular Vaccines and One Whole-Cell Vaccine Against Pertussis*, 334 NEW ENG. J. MED. 341 (1996).

²⁴⁰ Georges Peter, *Current Concepts: Childhood Immunizations*, 327 NEW ENG. J. MED. 1794 (1992).

²⁴¹ See Alan R. Hinman, *Eradication of Vaccine-Preventable Diseases*, 20 ANN. REV. PUB. HEALTH 211 (1999).

²⁴² See, e.g., Michael Specter, *Comment: Shots in the Dark*, THE NEW YORKER, Oct. 11, 1999, at 39.

²⁴³ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Update: Childhood Vaccine-Preventable Diseases—United States, 1994*, 43 MORBIDITY & MORTALITY WKLY. REP. 718 (1994).

Those against school vaccination policies assert the potential risks and dangers of vaccination, suggest that massive immunization for some diseases is not needed, and oppose governmental policies which may differ with their political or religious beliefs. Organized groups of parents and consumer advocates actively lobby state legislatures for liberal exemptions²⁴⁴ and seek judicial or administrative recourse for injuries to children allegedly arising from vaccination. Some argue that the government should never impose vaccination, with its attendant risks of injury and disease, without informed consent.²⁴⁵

These debates, at least in part, are contrasted by differing perceptions of risk among competing sides. Certainly, societal acceptance of the risks associated with vaccination depends, in part, on the weight given to communal goods versus individual rights. But differences in risk perception run much deeper. Epidemiologists and other scientists dispassionately measure the population benefits against economic costs.²⁴⁶ "[E]ffective childhood vaccines are highly economical and thus represent an efficient use of society's resources."²⁴⁷ The lay public may mistrust expert claims of safety and effectiveness.²⁴⁸ Parents, in particular, may be more concerned with the health of *their* children and may feel strongly that the risk of a catastrophic vaccine-induced injury, no matter how small, should not be mandated by government.

Thus, perceptions differ sharply depending on whether the risk of vaccination is viewed from an individualistic or societal perspective. From

²⁴⁴ Jackson, *supra* note 126, at 792-94 (noting that objections to compulsory vaccination include religion, distrust of science, infringement of personal liberty, and enforcement problems); Kristine M. Severyn, *Jacobson v. Massachusetts: Impact on Informed Consent and Vaccine Policy*, 5 J. PHARM. & LAW 249, 260-61 (1996) (discussing organized citizen opposition to defeating legislative attempts to repeal philosophical exemptions in state legislatures).

²⁴⁵ INST. OF MED., *RISK COMMUNICATION AND VACCINATION* 11 (Geoffrey Evans et al., eds., 1997).

²⁴⁶ INST. OF MED., *VACCINES FOR THE 21ST CENTURY: A TOOL FOR DECISIONMAKING* (Kathleen R. Stratton et al., eds., 1999) (advising use of a quantitative assessment to evaluate benefits and costs of candidate vaccines); Murray Krahn et al., *Costs and Cost-Effectiveness of a Universal, School-Based Hepatitis B Vaccination Program*, 88 AM. J. PUB. HEALTH 1638 (1998); Tracy A. Lieu et al., *Cost-effectiveness of a Routine Varicella Vaccination Program for US Children*, 271 JAMA 375 (1994); Tracy A. Lieu et al., *Cost-Effectiveness of Varicella Serotesting Versus Presumptive Vaccination of School-Age Children and Adolescents*, 95 PEDIATRICS 632 (1995).

²⁴⁷ Peter, *supra* note 240, at 1794.

²⁴⁸ See, e.g., STEPHEN BREYER, *BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION* 35-43 (1993).

the perspective of a single child, there may be greater risk if she is vaccinated than if she remains unvaccinated. For example, during the past two decades, the only cases of polio reported in the United States are caused by the vaccine; an unvaccinated child's risk of contracting wild polio virus is very small.²⁴⁹ State-imposed vaccination should be understood in this light. The state is explicitly asking parents to forego their right to decide the welfare of their children not necessarily for the child's benefit but for the wider public good. From a societal perspective, the choice not to immunize may be optimal to the individual if there is herd immunity, but in the aggregate, this choice could lead to failure of that herd immunity.²⁵⁰ Affording individuals the right of informed consent to vaccination, then, may not be for the greatest good of the community. Rather, informed consent can contribute to a "tragedy of the commons" if too many people make the decision not to immunize.²⁵¹

In this section, we attempt to illustrate the ongoing debate concerning school vaccination policies by first examining the public health benefits of school vaccination requirements. Have these laws and policies produced the desired public health benefits that epidemiologists and others suggest? We attempt to compare childhood immunization rates and the rates of vaccine-preventable childhood diseases before and after the introduction of school attendance requirements. These data may help gauge the importance of school attendance requirements in increasing vaccination rates and reducing the incidence of childhood disease. We then explain and examine contemporary arguments of those opposed to modern school vaccination requirements through legal, ethical, and scientific lenses.

A. Public Health Benefits of School Vaccination Requirements

Since their inception, school vaccination requirements have principally been justified by the public health benefits derived from mandates requiring the immunization of children, as well as altruistic principles inherent in the

²⁴⁹ PAUL A. OFFIT & LOUIS M. BELL, *VACCINES: WHAT EVERY PARENT SHOULD KNOW* 55 (1999). As of January, 2000, OPV is no longer administered as part of the routine childhood vaccination schedule. See Denise Grady, *As Polio Fades, Dr. Salk's Vaccine Re-emerges*, N.Y. TIMES, Dec. 14, 1999, at F1.

²⁵⁰ Under the principle of herd immunity, a population becomes resistant to attack by a disease if a large proportion of its members are immune. This concept explains why some members of a group can remain unvaccinated and the group can still remain protected against disease. See, e.g., LEON GORDIS, *EPIDEMIOLOGY* (2d ed. 2000).

²⁵¹ G. Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968).

societal protection of children from disease.²⁵² Very few public health officials would disagree that school vaccination policies have had a significant and positive effect on increasing rates of childhood immunizations. Even fewer would disagree that increasing rates of childhood immunization have resulted in substantial declines of once common childhood diseases. The CDC proclaims that "[v]accines are one of the greatest achievements of biomedical science and public health."²⁵³ Another commentator suggests: "childhood vaccinations are the most effective public-health measure in American history."²⁵⁴ Numerous public health studies conclude that comprehensive vaccination policies are greatly responsible for the significant reduction, and sometimes complete eradication, of many childhood diseases.²⁵⁵

However, whether these desired public health effects are the direct result of school vaccination requirements is more difficult to ascertain. Lawmakers, public health officials, doctors, scientists, and scholars clearly believe that school vaccination laws and policies have been instrumental toward accomplishing public health goals. As one pediatrician has suggested:

The marked decline in the incidence of vaccine-preventable diseases in the United States has correlated with rates of immunization of approximately 95 percent or more in school-age children. These rates can be attributed in part to the enactment and enforcement of school immunization laws in each state.²⁵⁶

This contention is logical. School vaccination laws systematically condition school attendance on a child being fully vaccinated. While most modern vaccinations should occur within a child's first two years (well before the child attends compulsory education), most parents allow (and physicians perform) vaccinations principally for the health of the child, but secondarily for the reason that the failure to do so will result in a child's later

²⁵² Jackson, *supra* note 126, at 792.

²⁵³ *Impact of Vaccines*, *supra* note 3, at 1483.

²⁵⁴ Specter, *supra* note 242, at 39.

²⁵⁵ See, e.g., *Impact of Vaccines*, *supra* note 3, at 1482 (citing numerous studies); Alan R. Hinman, *Immunizations in the United States*, 86 PEDIATRICS 1064 (1990); Walter A. Orenstein et al., *Barriers to Vaccinating Preschool Children*, 1 J. HEALTH CARE POOR UNDERSERVED 315 (1990); Elizabeth R. Zell et al., *Low Vaccination Levels of U.S. Preschool and School-Age Children: Retrospective Assessment of Vaccination Coverage, 1991-1992*, 271 JAMA 833 (1994).

²⁵⁶ Peter, *supra* note 240, at 1794 (footnote omitted).

denial of school admission in states where laws are strictly enforced.²⁵⁷ In this way, school vaccination laws serve as a "safety net" for unvaccinated children who would otherwise be placed in a school environment where their risks of spreading and contracting disease are heightened.²⁵⁸ As Walter A. Orenstein and Alan R. Hinman suggest, school vaccination requirements "assure that virtually all children are immunized by the time they enter school. . . ."²⁵⁹

Do school vaccination laws, however, correlate with lower incidence rates of childhood diseases or improved vaccination coverage? Based upon a 1999 expert review of nine prior scientific studies focused on these questions, the National Immunization Program at the CDC and the Task Force on Community Preventive Services recently concluded that "sufficient scientific evidence exists that vaccination requirements for child care, school, and college attendance are effective in improving vaccination coverage and immunity and . . . in reducing rates of disease."²⁶⁰ Six regional studies found reductions of disease rates and outbreaks as a result of school vaccination requirements.²⁶¹ Three national studies concluded that states with school vaccination requirements had lower incidence of mumps and measles, especially when laws were enforced through exclusion of unvaccinated, non-exempted children from school.²⁶² The CDC, for example, examined the incidence of measles in states with and without school vaccination laws in 1973 and 1974 and found nearly forty-six

²⁵⁷ See, e.g., Jackson, *supra* note 126, at 792-94; Orenstein & Hinman, *supra* note 8, at S19.

²⁵⁸ Orenstein & Hinman, *supra* note 8, at S23.

²⁵⁹ *Id.*

²⁶⁰ Peter A. Briss et al., *Reviews of Evidence Regarding Interventions to Improve Vaccination Coverage in Children, Adolescents, and Adults*, 18 AM. J. PREV. MED. 97, 104 (2000); but see David B. Nelson et al., *Rubella Susceptibility in Inner-City Adolescents: The Effect of a School Immunization Law*, 72 AM. J. PUB. HEALTH 710 (1982); Timothy R. Schum et al., *Increasing Rubella Seronegativity Despite a Compulsory School Law*, 80 AM. J. PUB. HEALTH 66 (1990) (finding a significant increase in rubella susceptibility over a two-year period from 1985-1987 among inner-city youths in Milwaukee, Wisconsin, despite the passage and enforcement of state school vaccination requirement for rubella in 1980).

²⁶¹ See Briss et al., *supra* note 260, at 103 (citing various studies); see also Abigail Shefer et al., *Improving Immunization Coverage Rates: An Evidence-based Review of the Literature*, 21 EPIDEMIOLOGICAL REV. 96, 124-27 (1999) (tabulating the results of all relevant studies).

²⁶² See Shefer et al., *supra* note 261, at 124 (citing various studies).

percent greater incidence of measles in states lacking such laws.²⁶³ These and other findings²⁶⁴ support the correlation between school vaccination requirements, reduced disease incidence, and improved vaccination coverage "regardless of varying race/ethnicity and socioeconomic status."²⁶⁵

Yet, as with some other public health programs,²⁶⁶ whether school vaccination laws are solely responsible for increasing childhood immunization rates and lowering disease incidence²⁶⁷ is questionable. Other factors may also substantially contribute to these positive developments. Since the inception of school vaccination laws, for example, public attitudes have changed. Public health initiatives have increasingly turned to non-compulsory methods of compliance to encourage public participation. Parents may willingly have their children vaccinated based on better public education or the recommendation of their pediatricians, instead of the law. "School laws work," suggest Orenstein and Hinman, "because parents . . . rely on physicians recommendations in making their immunization decisions and most physicians . . . are supportive of compulsory immunization."²⁶⁸

Furthermore, the effectiveness of school vaccination requirements is challenged in some states and locales because of (1) prevailing low

²⁶³ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Measles—United States*, 26 MORBIDITY & MORTALITY WKLY. REP. 109, Table 1 (1977) (describing "[m]easles incidence and school-entry immunization requirement[s] for measles" from September, 1973 to September, 1974).

²⁶⁴ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Effectiveness of a Seventh Grade School Entry Vaccination Requirement—Statewide and Orange County, Florida, 1997-1998*, 47 MORBIDITY & MORTALITY WKLY. REP. 711 (1998) [hereinafter *Effectiveness of a Seventh Grade School Entry Vaccination Requirement*] (concluding that a vaccination requirement for middle school entry can be effective toward improving vaccination rates among adolescents).

²⁶⁵ See Shefer et al., *supra* note 261, at 124.

²⁶⁶ See, e.g., Lawrence O. Gostin & James G. Hodge, Jr., *Piercing the Veil of Secrecy in HIV/AIDS and Other Sexually Transmitted Diseases: Theories of Privacy and Disclosure in Partner Notification*, 5 DUKE J. GENDER L. & POL'Y 9 (1998) (illustrating the lack of empirical data of the efficacy of partner notification as a public health measure designed to reduce cases of sexually-transmitted disease).

²⁶⁷ Jackson, *supra* note 126, at 793 ("There are no published data that prove or disprove the postulation that preschool children residing in States with compulsory immunization laws are not as well immunized as preschool children living in States without such laws.").

²⁶⁸ Orenstein & Hinman, *supra* note 8, at S23.

vaccination levels of some school-age children²⁶⁹ and (2) threats to the public health due to “exemptors,” (i.e., persons who voluntarily choose to avoid vaccination on religious or philosophical grounds).²⁷⁰ Although coverage of school age children for most vaccines has been equal to or greater than ninety-five percent for over two decades,²⁷¹ and the number of exemptors is small (around two percent nationally),²⁷² varying factors contribute to sometimes unacceptably low rates of childhood immunizations.²⁷³ These factors include (a) lack of resources, access to services, or sufficient national monitoring; (b) increased costs of vaccines;²⁷⁴ (c) difficulties in administering some vaccines; (d) the complexity of the childhood immunization schedule;²⁷⁵ and (e) poor record keeping among some schools systems.²⁷⁶

Low rates of immunization may lead to outbreaks of disease. Several major outbreaks of measles from 1989 to 1991 produced some 44,000 cases of disease, 11,000 hospitalizations, and 130 deaths.²⁷⁷ Substantial portions of the measles epidemic occurred among unvaccinated children (although many of these cases may have involved pre-school-age children). Outbreaks such as these contributed toward Congress’s enactment of what is commonly known as the Comprehensive Childhood Immunization Act of 1993.²⁷⁸ The Act created an entitlement to free vaccine for eligible children through the Vaccines for Children (“VFC”) program,²⁷⁹ supported state

²⁶⁹ See, e.g., Orenstein et al., *supra* note 255, at 315; Zell et al., *supra* note 255, at 833.

²⁷⁰ Salmon et al., *supra* note 236, at 47.

²⁷¹ Orenstein & Hinman, *supra* note 8, at S23.

²⁷² Jeanne M. Santoli et al., *Barriers to Immunization and Missed Opportunities*, 27 PEDIATRIC ANNALS 366, 367 (1998) [hereinafter Santoli et al., *Barriers to Immunization*].

²⁷³ Zell et al., *supra* note 255, at 838-39.

²⁷⁴ Jeanne M. Santoli et al., *Vaccines for Children Program, United States, 1997*, 104 PEDIATRICS 1 (Aug. 1999) [hereinafter Santoli et al., *Vaccines for Children*].

²⁷⁵ Ctrs. for Disease Control & Prevention, U.S. Dep’t of Health & Hum. Servs., *Combination Vaccines for Childhood Immunization*, 48 MORBIDITY & MORTALITY WKLY. REP. 1 (1999).

²⁷⁶ Zell et al., *supra* note 255, at 839.

²⁷⁷ Ctrs. for Disease Control & Prevention, U.S. Dep’t of Health & Hum. Servs., *Measles—United States, 1992*, 42 MORBIDITY & MORTALITY WKLY. REP. 378 (1993); Nat’l Vaccine Advisory Comm., *The Measles Epidemic: The Problems, Barriers, and Recommendations*, 266 JAMA 1547 (1991).

²⁷⁸ Pub. L. No. 103-66, Title XIII, § 13631(b)(2), 107 Stat. 637.

²⁷⁹ Santoli et al., *Vaccines for Children*, *supra* note 274, at 1.

efforts to deliver vaccines, increased community participation and provider education, enhanced measurement of immunization status, and promoted combination vaccines to simplify the immunization schedule.²⁸⁰

Despite these important steps, access barriers to childhood immunization can lead to under-immunization.²⁸¹ As recently as the early-1990s, approximately one-third of infants born annually in the United States had not received all of their recommended immunizations by age two.²⁸² Lacking a primary care provider, under-served children are not regularly monitored for immunizations. Public facilities, which deliver nearly one-third of all child vaccines, often provide linguistically and culturally inappropriate services, distant locations, long waiting times, and inconvenient office hours.²⁸³ In addition, some school systems may fail to strictly enforce existing vaccination requirements.²⁸⁴ Failure to enforce the law does not render the law invalid, but surely decreases its effectiveness.²⁸⁵

Public health authorities²⁸⁶ and others²⁸⁷ believe there is a need to "focus on vaccinating children less than 2 years of age rather than focusing on school-age children."²⁸⁸ In the past, some even suggested that school vaccination laws encourage parents to delay their child's immunization

²⁸⁰ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Reported Vaccine-Preventable Diseases—United States, 1993, and the Childhood Immunization Initiative*, 43 MORBIDITY & MORTALITY WKLY. REP. 57 (1994); U.S. Gen. Acct. Off., *Vaccines for Children: Critical Issues in Design and Implementation* (1994), available at 1994 WL 836170.

²⁸¹ INST. OF MED., OVERCOMING BARRIERS TO IMMUNIZATION: A WORKSHOP SUMMARY (Jane S. Durch ed., 1994); Felicity T. Cutts et al., *Causes of Low Preschool Immunization Coverage in the United States*, 13 ANN. REV. PUB. HEALTH 385 (1992); Gary L. Freed et al., *Childhood Immunization Programs: An Analysis of Policy Issues*, 71 MILBANK Q. 65, 65-95 (1993).

²⁸² Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Vaccination Coverage of 2-Year Old Children—United States, 1991-92*, 271 JAMA 260 (1994).

²⁸³ NAT'L VACCINE ADVISORY COMM., STANDARDS FOR PEDIATRIC IMMUNIZATION PRACTICES (1992), available at <http://www.cdc.gov/od/nvpo/standar.htm>.

²⁸⁴ Robbins et al., *supra* note 220, at 270.

²⁸⁵ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Measles and School Immunization Requirements—United States, 1978, 27 MORBIDITY & MORTALITY WKLY. REP. 303* (1978).

²⁸⁶ *Impact of Vaccines*, *supra* note 3, at 1482; Orenstein & Hinman, *supra* note 8, at S24.

²⁸⁷ Mel Friedman & Ellen Weiss, *America's Vaccine Crisis*, 68 PARENTS MAG. 38 (Dec. 1993).

²⁸⁸ Zell et al., *supra* note 255, at 839.

because it is not mandatory until school age.²⁸⁹ Modern policy makers, however, conclude that efforts to vaccinate children are being hindered to some degree by incomplete and inaccurate understanding and information. Often parents are confused or do not comprehend immunization requirements.²⁹⁰ Immunization information that parents impart to health care providers—whether from recall or from vaccination cards—is frequently incorrect or insufficient.²⁹¹ As a result, some states have developed immunization data systems to track children, identify those who need to be vaccinated, and generate notices when a child's vaccinations are due or past due.²⁹² Consequently, vaccination rates among pre-school age children have improved significantly.²⁹³ In addition, school vaccination campaigns, especially for diseases which children may be vaccinated against later in life (i.e., hepatitis B), remain effective toward ensuring fairly comprehensive immunization²⁹⁴ and thus, are still important components of childhood vaccination policy.

Another threat to the effectiveness of existing school vaccination policies centers on exemptions for religious or philosophical reasons granted by statute in most states. While the statistical proportion of exemptors remains low,²⁹⁵ the sheer numbers of unvaccinated students in school may detract from the public health benefits of comprehensive vaccination. Public health officials with the National Immunization Program and others have recently concluded that students who exempt school vaccination requirements on religious and philosophical grounds are

²⁸⁹ Jackson, *supra* note 126, at 793.

²⁹⁰ Santoli et al., *Barriers to Immunization*, *supra* note 272, at 369; Maureen Connolly, *Are Vaccines Still Safe?*, LADIES' HOME J. 82 (July 2000).

²⁹¹ Santoli et al., *Barriers to Immunization*, *supra* note 272, at 369; *see also* Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., *Impact of Missed Opportunities to Vaccinate Preschool-Aged Children on Vaccination Coverage Levels—Selected U.S. Sites, 1991-1992*, 38 MORBIDITY & MORTALITY WKLY. REP. 709 (1994).

²⁹² NAT'L VACCINE ADVISORY COMM., *DEVELOPING A NATIONAL CHILDHOOD IMMUNIZATION SYSTEM: REGISTRIES, REMINDERS, AND RECALL* (1994).

²⁹³ Immunization coverage in the U.S. in the year ending June 30, 1998 for nineteen to thirty-five month-old children was over ninety percent for most individual vaccines; only varicella had coverage below eighty percent. Ctrs. for Disease Control & Prevention, Unpublished data (1999).

²⁹⁴ *See, e.g., Effectiveness of a Seventh Grade School Entry Vaccination Requirement*, *supra* note 264; Salynn Boyles, *School-Based Hepatitis B Vaccination is Cost Effective*, VACCINE WKLY. (Jan. 18, 1999).

²⁹⁵ Santoli et al., *Barriers to Immunization*, *supra* note 272, at 369.

thirty-five times more likely to contract measles than vaccinated children.²⁹⁶ Yet, the public health consequences of widespread exemptions do not solely impact unvaccinated students. The risk that vaccinated students may contract measles from exemptors is significantly heightened where the exempt population grows, as evidenced by a 1996 measles outbreak in Utah.²⁹⁷

Thus, although school vaccination policies are deemed highly effective, they are not foolproof toward ensuring against childhood diseases or increasing vaccination levels where such policies: (1) are not solely responsible for decreasing rates of childhood diseases; (2) are unable to overcome other barriers to comprehensive childhood immunization; (3) are not always strictly enforced in some jurisdictions; and (4) are increasingly exempted, lawfully, by religious and philosophical objectors.

B. Modern Arguments Against School Vaccination Requirements

Many contemporary arguments against compulsory school vaccination mimic those of antivaccinationists of the past. People remain troubled about the safety and potential harms of vaccines, the need for vaccines (especially for diseases where prevalence is extremely low or non-existent), the rights of government to compel vaccination without informed consent, and the conflicts which vaccination present with individual religious beliefs. As in the past, these concerns have received significant legislative and judicial attention.²⁹⁸

Arguments relating to the safety of vaccines have been legislatively addressed through federal legal requirements. The federal Food and Drug Administration ("FDA") requires manufacturers to rigorously test the safety of proposed vaccines before they are introduced to the general population. Even after a vaccine is introduced, the FDA retains authority to prohibit its use if additional safety concerns arise. For example, the FDA

²⁹⁶ Salmon et al., *supra* note 236, at 49.

²⁹⁷ *Id.* at 51. However, at least some part of the Utah epidemic may be associated with the state's failure to require two doses of the measles vaccine. Utah was one of the few states at the time which did not require two doses of measles vaccine as a condition for school entry. *Id.* See also Paul Etkind et al., *Pertussis Outbreaks in Groups Claiming Religious Exemptions to Vaccinations*, 146 AM. J. DISEASES CHILDREN 173 (1992).

²⁹⁸ See, e.g., Gretchen Flanders, *Vaccinations: Public Health's 'Miracle' Under Scrutiny*, STATE LEGIS. MAG., Mar. 2000, available at www.ncsl.org/programs/pubs/300vacc.htm#miracle.

recently advised the manufacturer of RotaShield, a vaccine to prevent the leading cause of childhood diarrhea (rotavirus), to pull the product off the market after concerns arose over its potential to cause bowel obstructions in small children when employed on a population-wide basis.²⁹⁹

Liability for injuries resulting from the use of vaccines was the source of major legislative reform in the 1980s. In the early part of the decade, manufacturers expressed concern about an increase in lawsuits for vaccine-induced injuries. They claimed that substantial tort costs would discourage research and innovation. At the same time, consumer groups felt it was morally wrong to make parents prove that manufacturers were at fault before obtaining compensation for vaccine-induced injuries. After conducting hearings on these issues from 1982 to 1986, Congress enacted the National Childhood Vaccine Injury Act ("NCVIA") of 1986.³⁰⁰

The NCVIA established four programs:

(1) the *National Vaccine Program* in the Department of Health and Human Services is responsible for most aspects of vaccination policy—e.g., research, development, safety and efficacy testing, licensing, distribution, and use;

(2) the *Vaccine Injury Compensation Program* compensates persons who suffer from certain vaccine-induced injuries according to values set in a Vaccine Injury Table. Though well-intended, this program has been highly controversial. While it has sharply reduced litigation, the "no-fault" adjudication system has been time consuming, costly, and adversarial.³⁰¹ Nearly three-fourths of claims have been dismissed;

(3) the *Vaccine Adverse Events Reporting System* requires health care providers and manufacturers to report certain adverse events from vaccines;³⁰² and

(4) a *vaccine information system* requires all health care providers to give parents standardized written information before administering certain vaccines.

²⁹⁹ *Diarrhea Vaccine Withdrawn*, WASH. POST., Oct. 16, 1999, at A3.

³⁰⁰ National Childhood Vaccine Injury Act of 1986, Pub. L. 99-660, tit. III, § 311(a), 100 Stat. 3756 (codified as amended at 42 U.S.C.A. §§ 300aa-1 to 300aa-34 (2000)); see also Derry Ridgway, *No-Fault Vaccine Insurance: Lessons From the National Vaccine Injury Compensation Program*, 24 J. HEALTH POL., POL'Y & L. 59 (1999).

³⁰¹ Wendy K. Mariner, *The National Vaccine Injury Compensation Program*, 11 HEALTH AFF. 255, 262 (1992).

³⁰² INST. OF MED., VACCINE SAFETY FORUM (1997) (discussing detection and response to adverse effects).

States have legislatively responded to antivaccinationist arguments against the compulsory nature of school vaccination programs by enacting medical, religious, and philosophical exemptions to such requirements.³⁰³ Additional arguments concerning the power of government have been resolved judicially, through court decisions ensuring the power of the state to compel vaccination (subject to some exceptions), the ability of states to condition compulsory education on vaccination, and the power of state boards of health or education to determine health policy for local schools.³⁰⁴ Modern legal arguments against school vaccination policies are generally resolved consistent with past cases. For example, a federal court of appeals in 1988 rejected a parent's claim for religious exemption based on his/her asserted belief that immunization was contrary to his/her child's "genetic blueprint."³⁰⁵

Still, fervent objections to school vaccination policies remain. Modern antivaccinationists continue to petition federal and state legislatures for legal reform of the current vaccination system, object strenuously to the addition of new vaccination requirements, seek administrative and judicial remedies for vaccination failures, circulate media and broadcast accounts of children being injured by vaccines (whether truthful or not), and attempt to influence others, namely parents. The Internet has become a primary tool for organizations such as the National Vaccination Information Center ("NVIC"),³⁰⁶ a nonprofit organization that advocates reformation of the mass vaccination system, to disseminate information on the negatives of specific vaccines and vaccine use generally.

The CDC's National Immunization Program has identified (and generally refuted) common misconceptions about vaccination,³⁰⁷ including: (1) improvements in hygiene and sanitation (but not vaccines) are responsible for disease reductions, (2) most people who get diseases are vaccinated, (3) vaccines cause many harmful side effects, illnesses, and death, and (4) the elimination of diseases in the United States means that vaccination is no longer needed.³⁰⁸ Paul Offit and Louis Bell have

³⁰³ Jackson, *supra* note 126, at 791.

³⁰⁴ See *supra* Part III.B.

³⁰⁵ Mason v. Gen. Brown Cent. Sch. Dist., 851 F.2d 47 (2d Cir. 1988).

³⁰⁶ National Vaccine Information Center, available at <http://www.909shot.com> (last visited Mar. 17, 2002).

³⁰⁷ Ctrs. for Disease Control & Prevention, U.S. Dep't of Health & Hum. Servs., 6 *Common Misconceptions about Vaccination (and how to respond to them)* (1996), at <http://www.cdc.gov/nip/publications/6mishome.htm> (last modified July 29, 2001).

³⁰⁸ *Id.*

attempted to expose the falseness of additional, popular vaccination myths in general, including that: (1) infants are too young to be immunized, (2) current vaccines weaken or use up the immune system; (3) vaccines contain preservatives or other infectious agents that may harm individuals (popularized recently by arguments that the polio vaccination may have spread HIV),³⁰⁹ and (4) pharmaceutical companies manufacture batches of vaccine that cause high rates of adverse events (i.e. "hot lots").³¹⁰

Well-circulated published arguments³¹¹ contend that combination vaccines cause or contribute to a variety of conditions, including diabetes, asthma, autism, and sudden infant death syndrome, as well as countless side effects. Representative Dan Burton of Indiana chaired a Congressional hearing in 2000 to examine the potential that increases in the rate of autism in children are linked to vaccine use. Representative Burton, whose grandchild was recently diagnosed with autism, suggested in his opening comments that the MMR vaccine was responsible.³¹²

Some of these claims have scientific merit and require additional scientific study, but many do not. As Professor Neal A. Halsey, who directs the Johns Hopkins University Institute for Vaccine Safety,³¹³ has recently summarized:

The increasing incidence of diabetes, autism, and other medical conditions for which no specific etiology has been identified parallels the increase in many other factors such as the use of wireless communications, computers, and fast food restaurants. One could easily hypothesize that these factors or many other changes in our lifestyles contributed to the increases in these diseases, but there is no scientific evidence to support these ideas.³¹⁴

³⁰⁹ See, e.g., Lawrence K. Altman, *New Book Challenges Theories of AIDS Origins*, N.Y. TIMES, Nov. 30, 1999, at F1; Jerome Groopman, *The End of Aetiology*, NEW REPUBLIC, Dec. 27, 1999, at 28 (both discussing the text, EDWARD HOOPER, *THE RIVER: A JOURNEY TO THE SOURCE OF HIV AND AIDS* (1999)). But see T.R. Reid, *Tests Fail to Show Link Between HIV, Polio Vaccine*, WASH. POST, Sept. 12, 2000, at A23.

³¹⁰ OFFIT & BELL, *supra* note 249, at 107-20.

³¹¹ See, e.g., HARRIS L. COULTER & BARBARA LOE FISHER, *DPT: A SHOT IN THE DARK* (1985).

³¹² See J.B. Orenstein, *The Harm In Injecting Doubt*, WASH. POST, Apr. 16, 2000, at B3.

³¹³ Institute For Vaccine Safety at <http://www.vaccinesafety.edu> (last visited Mar. 17, 2002).

³¹⁴ Testimony of Neal A. Halsey, M.D., Before the House Committee on Government Reform, Safety and Efficacy Issues, Oct. 12, 1999 (LEXIS, Federal News Service).

Though at times sensational and misinformed, antivaccinationist sentiment among a minority of the American public is understandable. Individuals assess risks to their children very differently than public health officials gauge the public risks of vaccination. A statistically insignificant chance of an adverse reaction to a vaccination may not ultimately shift public health policy underlying its use, but it means everything to the parents whose child is injured. Such children become sympathetic examples of what every parent seeks to avoid. These risks are especially difficult for individuals to absorb where they occur as a result of the administration of a vaccine for diseases which no longer proliferate among children. "Most people can't remember a time when polio, measles, diphtheria, and smallpox killed tens of thousands of children each year."³¹⁵ Risks of not being vaccinated greatly outweighed the countervailing risks of vaccination in prior times. Still, the public health "defeat" of multiple diseases in modern times has led to increased calls for the elimination of the vaccine for these diseases.

Perhaps the most common theme running through antivaccinationist arguments of the past and modern day is distrust. Some people do not uniformly trust the government or large corporations responsible for researching, manufacturing, and profiting from vaccinations. While this distrust is often misplaced, antivaccinationists point to exceptional cases where perhaps it is not. An example is the swine flu immunization program of 1976. Despite public health and political debate, as well as problems with manufacturing sufficient quantities of safe vaccine, the CDC and President Gerald Ford initiated a mass immunization effort following reports of the spread of swine flu.³¹⁶ Within weeks, national surveillance activities revealed several cases of Gullian-Barre syndrome ("GBS") (an acute inflammatory neuropathy that can result in permanent paralysis) among vaccine recipients.³¹⁷ Three elderly people died after recently being administered the vaccine (although their deaths may not have been related to GBS or the vaccine). The immunization program was quickly shut down after forty-five million people were vaccinated at great cost to taxpayers.

³¹⁵ Specter, *supra* note 242, at 39.

³¹⁶ See, e.g., RICHARD E. NEUSTADT & HARVEY V. FINEBERG, *THE EPIDEMIC THAT NEVER WAS: POLICY-MAKING AND THE SWINE FLU AFFAIR* (1983); Walter R. Dowdle, *The 1976 Experience*, 176 (Supp. 1) J. INFECTIOUS DISEASE S69 (1997).

³¹⁷ Dowdle, *supra* note 316, at S69.

Many commentators held public health scientists primarily responsible,³¹⁸ perhaps deservedly so.³¹⁹ However, others were also to blame. The media exaggerated the health effects of swine flu and, subsequently, the risk of vaccine-induced injury and death. The pharmaceutical industry convinced Congress to hold it harmless against law suits, while at the same time profiting from a massive vaccination program actively promoted by the government.³²⁰ Politicians sought to use the epidemic to gain credit for a successful public health program and later to avoid the stigma of its failure.

Ultimately, there will always be a voice for antivaccinationists where school vaccination requirements remain a primary public health strategy and risks to individuals remain a consequence. In many ways, the collective voices of the minority have helped to shape and improve vaccination science and policy. Additional improvements are needed. However, to the extent that antivaccinationists suggest that school vaccination requirements are useless, unnecessary, more damaging than good, and inconsistent with governmental responsibilities, their arguments are counter-productive.

V. CONCLUSION

We have attempted to examine and demonstrate the varying debates concerning school vaccination requirements through a historical and modern look, as well as a scholarly assessment of these arguments. It is interesting how many of the historical debates concerning compulsory state vaccination and its application to selective environments, such as school-age children, continue to be raised in modern times. Vaccination proponents have prevailed over time due to the proven impact of increased childhood immunization rates, which directly correlate with lowered incidence of disease. That school vaccination laws have principally contributed to these public health effects is logically assumed and proven through scientifically-sound, empirical data. Antivaccinationists have argued, unsuccessfully, for the repudiation of broad school vaccination

³¹⁸ Cyril H. Wecht, *The Swine Flu Immunization Program: Scientific Venture or Political Folly?*, 3 AM. J. L. & MED. 425 (1977). But see Nicholas Wade, *1976 Swine Flu Campaign Faulted, Yet Principals Would Do It Again*, 202 SCI. 849 (1978).

³¹⁹ The available data were inadequate to predict whether swine flu would be contained within narrow outbreaks or would become a more serious epidemic. See Jonathan E. Fielding, *Managing Public Health Risks: The Swine Flu Immunization Program Revisited*, 4 AM. J. L. & MED. 35 (1978).

³²⁰ *Id.* at 37.

requirements, but have succeeded in carving out political and constitutionally-based medical, religious, and philosophical exceptions to these requirements. Their cause is continually fueled by allegations (some accurate, many false) of the dangers of compulsory vaccination to certain individuals. These debates, though complex and not easily resolved, will continue to shape future vaccination policy. Trade-offs will be inevitable. Childhood immunization efforts may be thwarted by increasingly larger pools of exemptors. Vaccinations may injure children in numbers which are statistically insignificant but still representative of innocent lives impacted. While these trade-offs can never be fully resolved, school vaccination policies help to serve a valuable public health goal of reducing once epidemic childhood diseases. These benefits of a comprehensively vaccinated childhood population belong not only to the public's health, but to each individual.